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An Address

ON THE

DIAGNOSIS OF A HEALTHY HEART.

Delivered before the Canadian Medical Association at the Annual Meeting, Ottawa, on June 19th, 1924.

BY JOHN PARKINSON, M.D., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE LONDON HOSPITAL AND PHYSICIAN-IN-CHARGE OF THE CARDIOGRAPHIC DEPARTMENT; PHYSICIAN TO OUT-PATIENTS, NATIONAL HOSPITAL FOR DISEASES OF THE HEART.

THE purpose of this address is to deal with the recognition of a healthy heart when circumstances arise which impugn its integrity. The soundness of the doctrine that diagnosis is the basis of good treatment is nowhere better exemplified than in heart disease, so that the duty is clearly imposed on us to decide first of all whether heart disease is or is not present. The general feeling of a public ignorant of the modern trend of preventive medicine is that doctors are primarily concerned with disease; but though it is our privileged misfortune to deal with disease most of our time, this should not close our eyes to the recognition of a healthy organ when its functions are merely deranged, or when other members of the corporate body cast on it clinical aspersions which are undeserved. Not only from the standpoint of rational treatment would I emphasise the prime importance of this diagnosis of a healthy heart whenever it is honestly possible, but from that of the general interests of the patient in allaying his fears and restoring his confidence. I would urge that in no branch of medicine is it more desirable to cultivate the art of deciding when disease is absent and apprehension baseless.

The responsibility of diagnosing a healthy heart should not be shirked because of the professional risk we incur of giving a good prognosis in error; and we should not seek to avoid that risk by adopting an attitude of pessimistic complacence which allows us to diagnose heart disease on mere suspicion, or to accept a second-hand diagnosis which may be brought us when, in fact, the heart may be sound. Such an attitude of playing for safety would be more justifiable were our heart cases doomed to end with the dramatic abruptness usually depicted by the novelist and imagined by the laity; a belief which is false, and founded, not on general experience, but on the distorting impression of an occasional casualty. The progress of cardiac disease as a rule gives us ample time for a revision of our prognosis. Moreover, serious heart disease is recognisable and is recognised in practice. It is rarely that a grievous malady of the heart is so elusive as to be missed, unless it be angina pectoris (which error might happen to the most experienced of us); and though a damaged heart may bear a semblance of health in this and other conditions I shall hereafter discuss, it can with a measure of certainty be caught in the net of clinical investigation.

The tendency to excessive diagnosis of heart disease was rife in the war when thousands of men were rejected as unfit for service or were invalided out of the army on the slenderest evidence of valvular disease and a mistaken notion of the ambit of cardiac manifestations. The moral of many ex-Service men has been damaged to such an extent by this wrong diagnosis of heart disease that they will never again consider themselves fit to work. The same process of indiscriminate diagnosis of cardiac disease prevails in civil practice; or if the term disease is felt to be too strong or unpalatable to the patient, in its place is substituted a cryptic phrase familiar to us as a "weak heart" or a "strained heart." I would stress the fact that whatever the temptation to do otherwise, there is seldom any justification in the realm of heart trouble for other than a preliminary statement that either there is something wrong with the heart or there is not. Whenever we use the term "heart disease" it should imply something which will either shorten the life of our patient or restrict his activities. It might seem out of place for me to remind you that an exact diagnosis only will permit us to give the complete prognosis, and that it is a point of honour with the medical profession not to cause needless alarm in giving judgment. Surely, then, we would rather discover good grounds for an assurance that the heart is healthy, thereby allaying any apprehension a patient may reasonably have, than omit to sift the evidence which at first sight might be accepted as proof of disease and premature dissolution. It is therefore my wish to examine with you the evidence which may enable us to reduce this excessive diagnosis of heart disease by clarifying our conception of what really constitutes cardiac invalidism.

ÆTIOLOGY.

I will first consider the subject in the light of the ætiology of cardiac disease. During the last century it was customary to find in the text-books a long list of causes preceding the description of any particular cardiac disease. The list could always be described as being at least comprehensive! Just as progress in neurology has led to much simplification of the causes of nervous disease and the rejection of many conjectural causes—I need only mention tabes and syphilis as an example—so from diseases of the heart have untenable causes been dropped with the advance of precise and discerning knowledge. *Acute rheumatism* still holds its terrible position as the dominant cause of heart disease in children and young adults. This is the real "heart fever." The idea has been fostered that any infection may permanently injure the heart; and diphtheria, influenza, and scarlet fever are still viewed, I am afraid, as not infrequent offenders in this respect. These, it is true, are occasionally the cause of acute heart affections, but surely the risk of contracting a permanent valvular or myocardial disease from them is very remote. When, for instance, we meet with mitral stenosis or aortic incompetence in our young patient we do not think of scarlet fever or influenza, we think of rheumatism or chorea; and if we can find no history of candid rheumatism we try to elicit an account of some illness which to our medical minds spells rheumatism. It is worth the trouble to ask as a routine about St. Vitus's dance, for chorea in cardiac essence is rheumatism. I may add that rheumatism and its kindred should not lightly be dismissed from our minds even when no history of it can be obtained. For there is a likelihood that the brunt of a veiled attack may be borne by the heart—i.e., cardiac as distinct from articular rheumatism. A history of rheumatism or chorea should therefore always make us pause before diagnosing a healthy heart.

Syphilis is the other cause of infection and permanent, nay progressive disease of the heart—the cause which should loom in our minds when confronted with a patient developing heart disease in middle life. Morbid anatomy, supported by the discovery of the spirochæte and the Wassermann reaction, tells us that syphilitic aortitis is one of the commonest of post-mortem findings, so we cannot but admit its clinical frequency. It was an advance in medical science when saccular aneurysm was recognised as almost exclusively syphilitic; and the time has come for us to diagnose syphilitic aortitis and its other complications, aortic incompetence, and even angina pectoris. For aortic incompetence is generally syphilitic when it makes its appearance in middle life, and angina pectoris in middle life is most often a manifestation of syphilitic infection. In fact, if we could be sure that a person in youth or middle age had never been infected by rheumatism or by syphilis we might almost presume that he would possess a healthy heart.

This matter is not so simple, however, when *age changes* in the medical sense may be assumed to have begun. In these degenerative and allied changes which milestone the march of senility, we encounter the third great cause of heart disease, and one which defies exact analysis. Among its results we have, first, disease of the arteries, with its general and localised effects, as in coronary disease; secondly, that disease of unknown origin, and not necessarily senile, in which hypertension is a prominent feature, and which is commonly a dual affection of the cardio-vascular and renal systems.

I submit that there are certain alleged causes of heart disease which need not influence our judgment in deciding as to its presence or absence. In the first place, *nervous strain* is often advanced by patients or their friends as the cause of their symptoms, supposedly cardiac. We are rather tired of the "strained heart," the "disorderly heart" of the pensioner whose nerves are in disorder, the "weak heart" of the neurasthenic; and it would be well for us to forget such hackneyed designations. *Physical strain* has too long been held as a cause of heart disease. When the heart is the seat of an infection we all would agree that exertion will injure it. With this exception, the danger of physical strain per se is now largely discounted. The heart has scarcely ever been proved to have been injured by physical strain alone, and the older reported cases will not bear modern criticism. The "athlete's heart," like the "strained heart," is a myth. It is a striking fact that among the causes even of "soldier's heart" physical exertion alone never took a place of any importance; although, of course, unwonted exertion has often revealed the presence of previously unsuspected cardiac disease.

Next we come to *toxic influences*. In searching for the cause of disease we sometimes find a definite septic focus—as, for example, in the tonsils; when we do not, we imagine a factory of toxins elsewhere, if we are so disposed. Driven by this natural desire to find the cause of an obscure case of disease, we have been induced to focus our attention on teeth, tonsils, intestinal toxæmias. But let me beg of you not to be led away by such conceptions into supposing that we have here a likely cause of chronic heart disease. When toxins which have a selective action on the heart are isolated (and abnormal thyroid products probably include such), it may be different. Toxic substances disarranging metabolism, or disturbing the balance of endocrine activities, may be a cause of general ill-health and physical imbalance without specifically affecting the heart, which only participates in the general debility or functional upheaval. Here let me say that the evidence of tobacco causing permanent disease of the heart is meagre. It is easy to show that in the early reported cases there were associated effects of syphilis or atheroma. Well-authenticated cases due to tobacco alone are very few or non-existent. Smoking has a slight though definite effect in accelerating the heart-rate and raising the blood pressure, these effects being demonstrable during the actual smoking and for some time afterwards. When palpitation is induced by smoking I would ascribe it chiefly to a heightening of the patient's sensibility to extra-systoles or to this increase in the pulse-rate, not to mention its company with indigestion. By far the most important clinical disadvantage of smoking is its tendency to induce pain in the left thoracic region, from which there may be an extension of pain or hyperæsthesia even to the left arm. This is too often unjustifiably diagnosed as "tobacco angina"; but if the patient is wise he will have curtailed his smoking before his doctor has been tempted to diagnose such a terrible disease as "angina."

Speaking generally then, in youth or middle age rheumatism and syphilis are the prime causes of chronic heart disease, and in later life high blood pressure or changes in the aorta and other arteries, notably the coronary. Excluding congenital defects, ruling out acute rheumatism and chorea, and with the Wassermann reaction negative, one may say that, unless age or extracardiac disease is beginning to affect the situation, there is most reliable negative evidence to favour the diagnosis of a healthy heart.

SYMPTOMS.

I come now to the symptoms which are more or less provoked by heart disease. I am trying under these various headings to indicate the points which will enable you to diagnose the healthy heart. The first symptom of an unfavourable kind is *shortness of breath*. This is admittedly the capital and almost invariable symptom of heart disease. It is scarcely too much to say that heart disease of importance does not occur unless the breath is short on exertion. Even in angina pectoris, where pain is the characteristic feature, the breath is almost always shortened though only between attacks, not with them. We naturally exclude the non-cardiac causes of dyspnœa with which we are not now concerned. We must, however, be reasonable as regards the breathlessness we find in patients, paying regard to their age, general condition and habits, the character of their work, the opportunities they take for exertion; and we should not neglect to ascertain the lapse of efficiency and duration of the disability by asking the patient to compare his present breathlessness on a customary exertion with what it was, say, a month ago.

In the next place we have thoracic *pain*. There are some who, when they meet a patient complaining of pain in the left side of the chest not within the category of pleurisy, tend to call it angina pectoris, or, if not that, a pain arising from the heart. Now the majority of those with pain in the left side of the chest are not the subjects of heart disease. Angina pectoris is relatively uncommon, while other chest pains are common enough. You will know that aching pain below the left breast is a familiar complaint of neurasthenics and of women at the menopause. It may extend to the left scapula or above the left breast, and even as an ache or heaviness down the left arm. It is almost constant, has no direct relation to exertion, and though it may be rather sharper then, it troubles the patient when at rest and especially when tired. Again, if we find a persistent area of hyperalgesia about the left breast, so that there is tenderness on palpation, we may not take it as an indication of heart trouble. It accompanies the neuralgic pain which has been described, and which may be compared with a headache. Incidentally, let me remark that if we hear of a headache we do not presume disease of the brain; therefore if we hear of a chestache, do not let us presume disease of the heart.

When a patient complains that he feels the beating of his heart, we say that he has *palpitation*. It may be that he feels the irregularity due to extra-systoles when he goes to bed, or is distressed by the heart beating too rapidly or too forcibly on exertion or excitement. Whatever form it takes, palpitation is much oftener significant of nervous hypersensitiveness, worry or indigestion, tea or tobacco, than of cardiac disease. It may be a trivial and transient complaint, a sensory phenomenon without any disturbance of the heart's rate or rhythm, and without any sign of disease. That special form of palpitation described by subjects of paroxysmal tachycardia will later be mentioned. It is a remarkable fact that patients with a failing heart and that most irregular of all arrhythmias, auricular fibrillation, do not complain of palpitation. They have something more distressing—they cannot get their breath!

Giddiness is another symptom which is too readily considered an associate of heart disease and expressive of it. We know it may occur with extreme tachycardia, in arterio-sclerosis, and in high blood pressure, but it is quite a rare symptom in cardiac disease proper. Dizziness or vertigo in a strict

sense, and if a prominent symptom, is mainly aural in origin.

The term *syncope* may with advantage be reserved for a faint with loss of consciousness, and a similar but milder experience without loss of consciousness would be *faintness*. Common experience shows that such symptoms may under given circumstances affect anyone, so that a susceptibility to faint does not imply heart disease. To all of us have been brought children who have fainted, and who have merely on that account been suspected of heart trouble. Children with heart disease are no more liable to faint than children with septic fingers. Syncope has to do with a temporary change in the circulation, probably vagal in origin, but it almost as readily occurs in a healthy circulation as in one which is the seat of disease. There are rare exceptions, such as the syncope of Stokes-Adams syndrome, in which heart disease is the immediate cause of syncope. I am prepared to admit that a faint in later life may have a deeper significance than a faint in adolescence, but even then the cause will oftener prove to be cerebral or cerebro-vascular rather than myocardial, for a faint is not a common failing of a faulty myocardium.

Often *weakness* or exhaustion is ascribed by patients to the heart, though this organ is not responsible. We seldom find patients with heart failure coming to us complaining that they are "weak." I would stress this complaint of weakness as a very characteristic symptom of an exhausted nervous system. When we are tired we do not think of our hearts as being tired, we feel that *we* are tired, referring to ourselves as a nervous organisation. Patients who complain that they must sit down, that a sudden feeling of weakness comes over them, and who thereupon demand a tonic, are not restored by giving digitalis! Of course, this tiredness may not always be a symptom of nervous exhaustion, it may be due to an infection like pulmonary tuberculosis, with its train of toxic effects not only upon the heart as evidenced by a rapid pulse, but upon the neuromuscular system and the ductless glands, the suprarenals in particular.

The cardiac patient has a limited capacity for exertion beyond which he cannot go without distress of a particular kind. Ask the patient what stops him when he is walking, as Sir James Mackenzie advises, and he will give the clue to the cause of his condition. If he stops on account of breathlessness or pain in the chest, the cause is usually cardiovascular. In fact, I would go so far as to say that whenever a patient complains of pain about the sternum when he walks, the diagnosis of a healthy heart is out of the question. In heart disease, early or late, the symptoms are of the same class, the early case differing from the advanced in the matter of degree, not of kind. The exclusive burden in the majority is shortness of breath. Those minor symptoms of which we have spoken are shown for what they are, not truly cardiac, for they have no place even in final failure when, if cardiac, they should be most in evidence. Instead, that unique symptom—breathlessness—is in absolute control as the expression of cardiac distress.

SIGNS.

Now we come to the valuation of the signs of heart disease and at once we are met by the difficulty so often experienced in dealing with patients sent for life assurance or for acceptance into the public services. If an enlarged heart always means a diseased heart, we cannot be too careful before we say that it is enlarged. What, then, are the signs of an enlarged heart that can be misleading? The visible pulsation around the apex-beat may be more diffuse than usual, being more noticeable and even extending as a ripple beyond the nipple line. No assumption of enlargement can be based on this appearance, as it is often the natural result of a tachycardia and nothing else. On re-examination after an interval the reduction in pulse-rate will be observed to coincide with the disappearance of the spacious impulse. Another equivocal sign of heart enlargement is the jerky impulse so commonly felt in the ruffled hearts of nervous patients and—pensioners. But an unduly forcible beat, heaving like a billow under the hand, is a reliable sign of heart enlargement; while the combination of displacement and forcefulness makes us more certain than anything else on simple clinical examination that the heart is enlarged. I find the observer commonly forgets that the only safe definition of the true apex-beat is the point farthest out and farthest down where there is an impulse which lifts the finger; and through his not palpating with the hand before the finger I have seen him miss an apex-beat which has escaped to the axilla! Occasionally an unusual or double quality in the palpated impulse raises suspicion of mitral stenosis; but an undoubted presystolic thrill—like the purring of a cat, however short—must be stipulated before the *hand* can establish this diagnosis. In speaking of enlargement, I would say that the terms hypertrophy and dilatation as applied to the heart have outlived their term of clinical usefulness. These are changes mainly of interest to the pathologist; physicians may well be content to decide whether enlargement is present or not. Certainly dilatation should never be used as synonymous with failure, for the heart enlarged from disease almost always remains enlarged, and when such a heart does fail it may show little or no further increase in size.

We can no longer rely on percussion as a means of deciding the slight or moderate changes in size which would enter into the question of a healthy heart. Before hazarding the diagnosis of an enlarged heart, without a known cause for it and in the absence of symptoms, it is only prudent to make sure, by the modern development of inspection—radioscopy, or by still more accurate X ray methods now at our disposal, whether the enlargement is real or apparent.

The recognition of a healthy heart leads us next to consider the question of altered *heart sounds*. Heart sounds are weak, or, safer said, distant in so many other conditions that this sign by itself need not raise suspicion of myocardial disease. A loud first sound, especially when it is sudden, may rumour the presence of mitral stenosis, but it would be well to wait for the certainty of a presystolic murmur, as loudness of sound, like an extravagant impulse, may be another misleading effect of increased rate. A duplicated first sound is a common cause of difficulty, for it is constantly present in some healthy persons, and is a frequent accompaniment of high blood pressure. It may be extremely hard to distinguish from a short presystolic murmur.

We are all familiar with the *systolic murmurs* which are a source of trouble, and I do not want to convey any idea that their exploration is easy, for it is not. In brief, when a systolic murmur is heard, does it mean heart disease? That is a common but very important and often perplexing question which faces every physician. What I have said of the history and symptoms bears effectively on the question and provides an answer. Is there merely a systolic murmur and absolutely nothing else to suggest a cardiac lesion? If so, we should not lay too much stress upon it. A systolic murmur, whether at apex or base, if it is softly blowing and unassociated with any enlargement of the heart or with any symptom of heart disease, can in the majority of non-rheumatic cases be ignored. By way of contrast with such a sample of negation, picture the rheumatic child, pallid and breathless, with a long blowing murmur at the apex, loud enough to produce a systolic thrill over an impulse which is displaced and forcible. No one, of course, will assume that a systolic murmur appearing during an acute infection, like scarlet fever, or even rheumatic fever, is necessarily of organic origin and a certain precursor of permanent defect; time alone may tell.

I turn next to changes in the rate of the heart—*bradycardia and tachycardia*. We find a patient with

a slow rate of pulse and ask whether that is a sign of heart trouble. Not necessarily, I may say. The normal heart, free from block, may beat at quite a low rate, as low as 50 or even 40 a minute, though rarely below 50. The patient may naturally have a slow pulse-rate, may be known to have had this peculiarity for years, or the pulse may be found infrequent during convalescence after an infection or after childbirth. These simple bradycardias are easily recognised by the fact that the rate is quickly increased by test exertion. Tachycardia is a far more difficult question, almost as difficult as the question of systolic murmurs. A patient has persistent simple tachycardia which increases on excitement, with exertion, and is reduced by rest though not completely. It lasts for months; digitalis fails to control it, as we have all found out; and we do not know how to stop it. But does it mean heart disease?—that is the question we have to answer. We will dismiss at once those cases in which it springs from pulmonary tuberculosis or hyperthyroidism, and not infrequently from chronic alcoholism. Setting these apart, we find it often associated with a neurosis, but not invariably. There are quite a number of cases of persistent tachycardia in otherwise healthy people without any trace of nervous instability. These are among the mysteries of ordinary clinical practice. Their tachycardia is the only positive sign. I am inclined to think they tend gradually to get better, but exact observation of them on any large scale seems to be wanting. A medical inquirer in general practice may one day give us this information. It is noteworthy that simple tachycardia, unless there is an underlying cause directly affecting the myocardium, does not seem to lead to heart enlargement or indeed failure. In pulmonary tuberculosis the heart is rapid, yet it does not enlarge despite the powerful toxins in circulation.

In modern practice we endeavour to distinguish a paroxysmal tachycardia from all other kinds. If it is an attack that starts abruptly, persists at a fixed high rate for a circumscribed period, and then ends abruptly, we are dealing with a case of paroxysmal tachycardia. If the patient is subject to such attacks, and continues perfectly well and free from abnormal signs in the intervals between them, it may almost be allowed that he has a healthy heart. If an electrocardiogram, taken during an attack, records ordinary paroxysmal tachycardia (and not auricular flutter or fibrillation), such a case is the best example we can quote of a functional heart disease, a term which has so often included little but functional nervous disease.

Then we have heard much in recent years of irregularities of the heart which do not imply heart disease. In children, and in adults too, there is often noticed a respiratory irregularity, sinus arrhythmia, the heart slowing during expiration and quickening during inspiration; and none of us now would take such a thing as a sign of disease. Similarly, if we found extrasystoles in a patient, disappearing on exertion as they do, or a patient complained of what were obvious extrasystoles, we should not take the same line as once was taken. These are not in themselves an index of heart disease, although they may occur along with it.

Before leaving the subject of signs, we have to note the absence of signs of cardiac failure. When we examine a patient with heart disease we are not surprised to find a slight enlargement of the liver, or a few crepitations at the bases of passively congested lungs, or some malleolar œdema. These are what we should look for as signs of failure, and we should not expect to find them in a patient without heart disease. When they are absent in a patient who maintains that he has had heart disease for 12, 15, or 20 years, we begin to ask ourselves whether this really is heart disease, and if it is, why this patient has been so favoured as never to get the signs of cardiac failure.

Therefore, if we get no history of an illness which can produce heart disease, no age changes, no symptoms, and none of the characteristic signs of the kind ordinarily found on examination, we get rather happy in approaching our diagnosis of a healthy heart.

SOURCES OF DIFFICULTY.

It would not be fitting that I should speak of the diagnosis of a healthy heart without referring to the greatest sources of difficulty in its diagnosis because of the mask of physical health which diseased hearts may wear. There are four or five conditions which display such a faint imprint of their cardiac origin that we may easily be misled into believing the heart is healthy when, in fact, it is stricken.

First of all we have *angina pectoris*. I cannot accept any definition of angina pectoris which does not connote danger to life. We all know how varied are the views as to its causation—let us meet on this common ground of understanding. The patient has something which demands diagnosis and treatment and a very careful and judicious prognosis. But the difficulty is that the patient may have angina pectoris and yet not have the signs of heart disease. The size of the heart may be normal, there may be no murmurs, the blood pressure may not be raised, yet the patient has angina pectoris and is confronted with death in each attack. To pursue the question of how we are to tell whether the patient has a healthy heart and has not angina pectoris would take us too far upon a side-line of argument; but in a word or two I would say that we can and must be prepared to diagnose angina pectoris from the patient's statements. Whatever the signs, whatever the history, if a patient complains of a severe pain—or merely an unpleasant pain—in the sternum or even in the breast or arm on exertion, and on exertion only, we dare not say that such a patient has a healthy heart. It is not healthy because it cannot do its work—at any rate, a sustained and reasonable amount of work. Whatever the signs and associations, we should view such cases with great seriousness, and insist on a complete examination to include the electrocardiogram and a Wassermann reaction. For angina pectoris in middle age is mainly due to syphilis and to nothing else. In older people the pathological basis is oftener non-syphilitic aortic and coronary disease. The importance of recognising syphilitic angina is that we have not merely a means of confirming its diagnosis, but a means of treatment which is going to relieve, if not actually cure, many a sufferer otherwise doomed to endure its torment. Mercury and iodide have not lost their power in syphilitic lesions because of the advent of a newer and stronger remedy which here may not always be applied with safety.

A second difficulty may be to decide whether *valvular disease* is present or absent. The absence of a presystolic murmur should not predicate the absence of mitral stenosis. It is most disturbing to find that a patient in whom we have heard this murmur one week has dropped it the next and seems to have a healthy heart. So a loud or sudden first sound, or a double first sound, especially with accentuation of the pulmonary second sound, though not diagnostic of mitral stenosis, may serve to check a too precipitate assertion of its absence. When such sounds are found we must pursue the diagnosis, searching for the murmur by listening at the apex with the patient standing, then immediately after exercise, lying on his left side. A definite presystolic murmur is the positive stamp of stenosis. The commonest effect of mitral rheumatism is the systolic murmur at the mitral area; but, so often does mitral stenosis accompany valvular incompetence, we might say with Graham Steell that a mitral systolic is the commonest murmur of mitral stenosis; stenosis which is necessarily of slower development, and may not produce until later its distinctive murmur. This deeper significance of a mitral systolic lends to it some importance, and justifies my emphasising among other values the

history of rheumatism to prevent the fallacious diagnosis of a functional systolic murmur.

Aortic incompetence is the other valvular disease liable to be overlooked unless special care is taken, as it may begin with a quiet, low-pitched short murmur in a patient with few or no symptoms. The only safe plan of detection is to listen at the aortic area and to the left of the sternum in a quiet room, the ear being directly applied to the chest while the patient stops breathing for a moment, with the question in our mind to attune our ear: Is there an aortic diastolic murmur or not? The valvular lesion found among serving soldiers was less often mitral stenosis than aortic incompetence. A patient with mitral stenosis would be too breathless to keep on the march, but a patient with aortic incompetence might not only be able to march but to take part in vigorous sports such as boxing. The lesson for us is that with a definite aortic diastolic murmur, timed by the thumb on the carotid artery, it does not matter much about the history nor much about the symptoms, it is a case of aortic incompetence and not a case of healthy heart.

The third group of cases in which mistakes are apt to arise consists of those with hypertension or *high blood pressure*. We should be particularly alert when we encounter a class of symptom commonly considered peculiar to the menopause, to a neurosis, to obesity. High blood pressure is always a condition to bear in mind when the condition of the heart may be obscured by such concomitants. The woman suffering the manifold symptoms of the menopause may seem to be sufficiently free from indications of cardio-vascular disease until the day her blood pressure is taken. Similarly the sensations of the neurotic may be coloured by the circulatory embarrassment of high blood pressure. When people are very stout we naturally expect them to suffer from breathlessness on exertion, and we are not surprised to find them following the cardiac fashion of stopping at frequent intervals to admire the scenery! Because of this we need not assign to a fat patient the mischievous diagnosis of "fatty heart"; nor, on the other hand, assume that the circulation is healthy because obesity may seem to account for the symptoms. The point I wish to make is that hypertension may be present in obesity and explain symptoms which may wrongly be imputed to other causes. The sphygmomanometer is therefore one of the best instruments to prevent the mistaken diagnosis of a healthy heart, or rather of a healthy circulation; for it permits the proper recognition of cardiac symptoms amid the welter of misleading circumstance, and places us in touch with that very common disease hyperpiesis, or primary high blood pressure, which is responsible for so much suffering and mortality in late middle life and early old age.

In looking at the last of the common difficulties which compass the diagnosis of a healthy heart, allow me to explain why so often the *nervous system* must be taken into account to settle the question, Is our case one of a nervous or a true cardiac disease? There is some justification for patients ascribing their symptoms to the heart when they feel palpitation, especially when the conscious thumping is rapid or irregular. The thought of some heart trouble is naturally prompted when they feel pain below the left breast or feel very weak and tired. These are symptoms which suggest to the patient heart disease, and perhaps to the doctor the same preliminary belief which should as quickly as possible, if found untenable, be dismissed. Apparently functional nervous disease is something of which a patient is ashamed, and so there are substituted cardiac troubles or heart attacks, which are regarded as more honourable. But it has a bad moral effect upon us to allow the false diagnosis of cardiac disease to stand when really the patient is suffering from a neurosis, or from some condition which is the outcome of his neurotic temperament. The false diagnosis draws the attention away from the proper line of treatment, which is one not related to the heart at all, besides being unfair to the relatives, who may be imposed upon by the sufferer and led to imagine that a life is in jeopardy. When faced by the neurasthenic, though his case appears quite plausible as one of cardiac disease, we must not forget all we have learned and seen about such disease, and we must not allow him to retain improperly a diagnosis which, after all, is not even relatively one to be desired.

In conclusion, it will be seen that these difficulties need not dismay us. It is sufficient to remember angina pectoris, early valvular disease, high blood pressure, and functional nervous disease. Having considered and excluded these, we may argue that there has been no adequate cause to affect the heart in question, and it is not enlarged; no more breathlessness occurs on exertion than is natural, and no pain; it works well. We emerge from the inquiry with the diagnosis of a healthy heart, as valuable and beneficent a diagnosis as a doctor could hope to reach. The diagnosis gives the line to treatment. If the heart is healthy it requires no treatment directed to itself, but if we recognise that some other condition is operating, then we shall be well on our way towards treating it.

THE ALKALI RESERVE OF THE BLOOD IN COLIFORM INFECTIONS OF THE KIDNEY.

EFFECT IN SUCH CASES OF TREATMENT WITH ALKALIS.

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THE very marked amelioration of symptoms which occurs on treatment with alkalis in cases of acute pyelitis due to the colon bacillus suggested an investigation into the cause of this improvement. There is no doubt that in the majority of cases the temperature falls, the pain on micturition and the frequency are diminished, and the patient feels very much better; yet the amount of pus and the number of bacilli in the urine are hardly at all decreased. Under these circumstances the immediate general improvement of the patient might conceivably be due either to the successful treatment of a condition of acidosis, or to lessened irritation due to the diminished acidity of the urine.

Alkali Reserve of the Blood in Urinary Infections.

Experimental work on animals was first carried out to discover whether acidosis occurs in infections of the urinary tract with the colon bacillus. Rabbits of 1500 to 2000 g. weight were selected. Catheter specimens of the urine of these animals were cultured, and the urine also examined microscopically for pus and casts, to prove a normal condition of the urinary tract before experiments were begun. An initial estimation of the alkali reserve of the plasma was also made, 3 to 4 c.cm. of blood being collected under paraffin from an ear vein, and the plasma CO_2 estimated in a Van Slyke micro-pipette.

After these preliminary observations had been made, an emulsion of *B. coli* was injected intravenously. Thenceforth the urine, collected from metabolism cages, was examined daily for increase in albumin and for pus and casts; if these appeared, catheter specimens of urine were obtained and cultures made. Estimations of the alkali in the plasma were made within 24 hours of the injection of organisms, and repeated at intervals of a few days as long as the urine showed the presence of an infection.

Of 12 rabbits treated in this way, two died within 24 hours and three showed no infection. The remainder developed urinary infections in varying

degrees. Two became acutely ill; one of these died after five days, autopsy showing a slight bilateral pyelitis, marked inflammation of the vesiculæ seminales and also of the gall-bladder, the bacillus injected being recovered from the urine and bile; the other showed small cortical abscesses in both kidneys, and very marked inflammation of the left testis from which the bacillus was recovered. Two other rabbits developed chronic urinary infections, pus and bacilli persisting in the urine for five weeks, and three showed a transient infection of the urine lasting only a few days.

In none of these cases was there evidence of a permanent acidosis. In seven out of eight rabbits examined within 24 hours the plasma bicarbonate showed a diminution varying from 6 to 20 per cent. This is in accordance with the findings of Hirsch, who observed an immediate fall of the plasma alkali following the intravenous injection of various organisms. In every case, however, this initial drop was followed by a return to normal within 48 hours, which was maintained as long as the animal was under observation.

It was, however, recognised that the rabbit is not an ideal animal for this research. Chronic infections are difficult to produce, and acute infections are too rapidly fatal to be useful for experimental purposes. Observations on the blood cannot be made sufficiently often, owing to the severe degree of anæmia produced by repeated bleedings. Furthermore, the rabbit when ill will eat only the cabbage in its food, leaving the oats, and any slight degree of acidosis might thus be masked by the diet.

For these reasons, experiments on animals were abandoned, and a series of observations was undertaken on the alkali reserve of hospital cases of acute *B. coli* pyelitis. The cases were under the care of Mrs. E. E. Flemming, M.D., and Miss D. C. Hare, M.R.C.P., to whom our grateful thanks are due for the facilities given us. Only those cases who were sufficiently ill to require treatment as in-patients were examined. The estimation of the alkali reserve was made, whenever possible, before treatment was begun, as well as at intervals during subsequent treatment with alkaline or acid salts. The plasma bicarbonate was estimated in most cases in capillary blood taken from the ear, using Martin's method, which we find gives the same results as those obtained by using a Van Slyke pipette. The percentage of CO_2 corresponding to these titrations in the capillary blood of 11 presumably normal people averaged 57·5 per cent., the actual figures varying from 47·5 to 68·5 per cent.

The results of observations made on six patients suffering from *B. coli* pyelitis before treatment had been begun are shown in Table I.

TABLE I.

Name.	Plasma CO_2 in capillary blood.	Name.	Plasma CO_2 in capillary blood.
	Per cent.		Per cent.
Mrs. G. ..	61	Mrs. J. ..	62
,, F. ..	68·5	,, S. ..	62·5
,, T. ..	49	,, D. ..	51

It will be seen that in none of these cases was there any diminution of the alkali reserve of the plasma sufficient to be considered abnormal. Tables II. and III. show the very slight effects produced in the alkali reserve of the plasma of the same patient by treatment either with alkalis or acids. The improvement in symptoms in such cases cannot, therefore, be due to the neutralisation of an acidosis, for the condition did not exist.

TABLE II.—*Mrs. C.*

Treatment.	Drug.	Grams per diem.	Duration of treatment.	CO_2 of plasma from ear.
			Days.	Per cent.
Alkaline ..	Pot. cit.	16	2	50·5
	,,	16	7	50
—	Urotropine.	4	10	50
Acid ..	Urotropine with ac. sod. phosphate	6	11	50

TABLE III.—*Mrs. R.*

Treatment.	Drug.	Grams per diem.	Duration of treatment.	Date.	Per cent. CO_2 plasma. Vein.	Per cent. CO_2 plasma. Ear.
			Days.			
Alkaline ..	Pot. cit.	4	—	9/6	59·7	—
	,,	12	4	12/6	—	64
	,,	18	2	15/6	—	67
—	Urotropine.	4	8	23/6	—	60·5
Acid ..	Ac. sod. phos. added.	5·2	2	1/7	—	58
		8	22	7/7	—	55
				14/7	—	59
				20/7	—	56
		16	7	24/7	—	56
				28/7	61	—

Influence of Treatment on Reaction of Urine.

Dismissing the question of an acidosis, we then considered the possibility that the acid urine, constantly found in these cases before treatment, irritated the inflamed mucous membrane of the urinary tract, and that the improvement on treatment with alkalis was due to the substitution of this irritating fluid by a neutral or alkaline urine. Preliminary observations were then made to study the effect of solutions of varying pH upon tissues denuded of their epithelium. Mixtures of acid and basic phosphates, isotonic with the blood, varying in pH from 4·0 to 9·0, were made up. Into these was dipped a finger with a newly inflicted cut or abrasion of the skin. It was found that a solution of pH 4 caused acute pain; between 5 and 6 a stinging sensation was produced, and between 6 and 7 a slight but definite discomfort and smarting. Solutions of pH higher than this had no effect till pH 9·0 was reached; this was found to be definitely soothing to an irritated surface. Comparable experiments were also made upon the mucous membrane at the urethral orifice in patients under treatment for urethritis. These, however, proved to be of little value; there was in every case complete insensitiveness to any of our solutions, probably accounted for by much previous treatment with strong disinfectants, some of which, such as 1 per cent. lactic acid, had a pH far lower than that of our phosphate mixtures.

We then made a series of observations on the urines of hospital patients undergoing medical treatment of pyelitis due to *B. coli*, to find out whether the improvement in the symptoms could be correlated with the alteration in the reaction of the urine. Specimens of urine were collected twice daily in wide-necked bottles containing toluene, which were filled to the brim with the freshly passed specimen and stopper replaced. Kept in this way there was only a slight loss of CO_2. The pH of the urine was estimated by the method described below; at the same time a note was made of the amount of pus and bacilli present.

Method of Estimating the pH of Urine.

A rough idea of the pH of the urine was obtained by noting the colour it produced with various indicators on a porcelain matching-plate. 5 c.cm. of the specimen were then measured into a standard test-tube, 0·5 c.cm. of the appropriate indicator added, and the colour matched with standard phosphate mixtures of known pH in a comparator, the colour of the urine being compensated in the usual way. If the pH were greater than 7·0, the urine was saturated with the alveolar air of the observer until no change of colour occurred. If CO_2 had escaped

since the urine was voided, the pH of a specimen which at first appeared to be 7·9 might prove to be 7·7 or 7·6 after this treatment. Even after saturation with alveolar air the pH of the urine as excreted would have been a little lower than that found, as the CO_2 tension in the kidney is higher than in alveolar air. The difference would only be significant in the case of very alkaline urines. Further, Davies, Haldane, and Kennaway have shown that the percentage of CO_2 in the alveolar air is raised during the administration of alkalis; the result obtained was, therefore, more alkaline than would have been the case had the specimen been brought into equilibrium with the patient's own alveolar air.

Results.

In all our cases the relief of symptoms, frequency and pain on micturition, backache and fall of temperature went hand in hand with the rise in pH of the urine. Table IV. shows the rapidity with which

TABLE IV.—*To Show Response to Alkalis.*

Name.	Date.	Drug: Pot. cit.	Grams per day.	Time.	Urine pH.	Temp.
Mrs. G.	6/10	Gr. 30 t.d.s.	2	9 P.M.	5·7	103·4°
	7/10	,, b.d.	4	9 A.M.	5·7	
				5 P.M.	7·4	
	8/10	,, t.d.s.	6	6 A.M.	6·1	Normal.
				7 P.M.	6·6	
Mrs. C.	24/7	Gr. 30 3-hrly.	16	7.45 P.M.	7·0	
	25/7	,, ,,	16	5.30 A.M.	6·7	
				6.30 P.M.	7·8	
Mrs. R.*	8/6	Gr. 30 t.d.s.	—	6.0 P.M.	5·6	103°
	9/6	,, ,,	—	6.30 A.M.	5·6	101·8°
				6.30 P.M.	5·6	
	10/6	,, 4-hrly.	—	6.30 A.M.	5·6	100·2°
				6.0 P.M.	5·8	
	11/6	,, ,,	—	6.0 A.M.	6·0	98·0°
				6.30 P.M.	7·4	98·6°

* For alkali reserve, see Table III.

Clinical Notes.

Mrs. G.: Oct. 6th, rigors, vomiting, abdominal pain, frequency. Oct. 8th, no pain or frequency.

Mrs. C.: July 22nd, pain and frequency subsiding immediately on treatment (first specimen obtained two days after admission).

some of the cases responded to alkaline treatment; there was no delay such as was found by Palmer and Henderson in cases of chronic nephritis, in which 15 to 110 g. a day of alkali were required to bring the pH of the urine to 7·0. The pH of the most alkaline specimen of the series was 8·7. In no case was a pH obtained approaching 9·2, the point at which inhibition of growth of *B. coli* was found by Shohl and Janney to occur in alkaline media. Furthermore, in no case was there more than an insignificant diminution in the number of bacilli and the amount of pus present.

Conclusions.

1. No evidence that a condition of acidosis occurs in acute coliform infections of the urinary tract has been found either experimentally or clinically.

2. The alteration in the amount of pus and bacilli in the urine following alkaline treatment is not sufficient to account for the improvement which takes place in the patient's symptoms.

3. This improvement appears to be definitely associated with a decrease in the hydrogen-ion concentration of the urine, and it is reasonable to suppose that a urine of high hydrogen-ion concentration irritates the inflamed mucous membrane of the urinary tract.

We are greatly indebted to Dr. C. J. Martin for advice regarding the methods used in this investigation and for his helpful criticism of the results obtained.

The greater part of this work was carried out while one of us (E. H. L.) was holding a Beit Memorial Research Fellowship.

CEREBRO-SPINAL FEVER:

A NEW PATHOGENIC CONCEPTION AND ITS IMPORTANCE FOR THE SPECIFIC TREATMENT OF THE DISEASE.

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ACCORDING to C. Worster-Drought and A. Mills Kennedy, "in man, for whom the meningococcus is definitely pathogenic, there is overwhelming evidence that the meninges are pre-eminently the site of election for this organism." The cocci, "on reaching the blood-stream from the naso-pharynx, are quickly carried to their destination," as if directed by some voluntary effort or by a mysterious power—their presumptive affinity for meningeal structures—"leave the blood-stream and localise in the subarachnoid space."

It would be easy to quote almost identical or similar opinions of the most competent authorities from the French (Dopter), German (Gruber and Kerschensteiner), or Polish (Droba and Kuczera) medical literature. Nevertheless, this "overwhelming evidence" is far from being as indisputable as it seems at first sight; and even in the monograph of the above-mentioned English authors we meet with details well adapted to disturb this rather excessive assurance. I mean particularly the cases intermediate in character between the pure septicæmic variety of the meningococcal infection and the ordinary fulminating type with meningitis. "In these cases, the course lasts only from 24 to 48 hours; blood cultures or cultivations from the heart blood taken post mortem yield meningococci. The brain and spinal cord may be practically normal in appearance or the ventricle may contain a small quantity of turbid fluid. The ventricular fluid, however, when planted out on to a suitable medium, gives growth of meningococci."

Route of Invasion of the Meningococcus.

According to these records, made by Herringham and Thornley and Symmers, to which we may add further analogous cases from Droba and Kuczera, Drigalski and Goeppert, it would appear quite evident that the meningococcus penetrates into the ventriculo-subarachnoid system, contrary to the hitherto expressed opinions, not through the meninges but through the choroid plexuses. This latter view is strongly corroborated by the histological investigations of Dopter who, in fulminating cases, found an acute inflammation of the plexuses, and in his monograph illustrates this change by very instructive figures. In cases having a longer course, this lesion seems to retrograde quickly in the subsequent stages of the disease.

The invasion of the meninges—i.e., of the primarily and chiefly affected arachnoid-mater, by the meningococcus directly from the circulation, appears quite incomprehensible, as this membrane is non-vascular. On the contrary, we can easily understand that during the bacteriæmic "pre-meningitic" stage a metastatic focus—analogous to the foci seen in the skin under the shape of various rashes—may develop in either of the choroid plexuses—richly vascular, secretory organs, to be regarded as a sort of cerebral kidney. Owing to the peculiar structure of the plexus-villi, the focus soon reaches and infects their epithelial lining. The infection, at first local, subsequently extends rapidly, finally constituting a general ventriculitis, encephalo-coilitis (ἐγκέφαλος, brain, and κοιλία, cavity), or choroido-ependymitis.

The meningococcus is in truth a very slightly pathogenic organism, but its feeble virulence is largely counterbalanced by its remarkable power of multiplying, which enables it to appear sometimes in the blood films, or at least to provoke extremely extensive maculo-papular, petechial, or purpuric rashes scarcely ever met with in other septicæmic infections. The

susceptibility, the lack of resistance of the organism, however—not its movement towards the meninges—constitutes the real reason why the general blood infection is, as a rule, of very short duration. In fact, as soon as the patient develops even the slightest degree of general immunity, the meningococci present in the circulation are impaired in vitality, lose their power to bring about metastatic lesions, and finally are completely destroyed. The former foci in the depth of the tissues disappear in a few days; and the rapid retrocession of the cutaneous changes offers us an excellent opportunity of following this process closely. Occasional metastatic lesions in the meninges, if they exist at all, must exhibit, no doubt, the same retrograde evolution, for the specific defence substances of the blood have as completely free access to these thecæ with their endothelial lining as to any other serous membrane or parenchymatous organ. Besides, whenever a certain part of the subarachnoid space—e.g., the spinal theca—is cut off from communication with the ventricles and thus ceases to be continually infected, the meningococci there disappear immediately, and the inflammation thereupon assumes a serous character. This must be regarded as the best proof that an autonomous meningitis independent of the ventricular process does not exist at all.

The conditions encountered by the infectious process in the cerebral ventricles are fundamentally different. The surface of these cavities is ontologically external, and possesses, in contrast with the meninges, not an endothelial but an epithelial lining. This layer constitutes normally for the proteins, and thus also for the antibodies of the blood, an almost impenetrable barrier; and even in the course of ventriculitis, when the inflammatory exudate carries some amount of plasma into the ventricular cavities, this obstacle is very serious. It is also of great import that this exudate is continually diluted by the cerebro-spinal fluid secreted in the ventricles. So we must conclude that the meningococci find in the cerebral ventricles extraordinarily favourable conditions for their existence, even more favourable than those upon the mucous membranes of the respiratory passages. Consequently, they can maintain themselves here for weeks, and even for months sometimes, while the continuance of any other deep infectious focus has long become quite impossible.

To emphasise that, in the above conception of meningococcal infection, we are not compelled to assume any mysterious faculty, for instance any special affinity of the meningococcus; it is sufficient to assume that it has certain properties which can be easily ascertained: (1) the ability to live in and upon the epithelial lining of the respiratory passages or of the cerebral ventricles; (2) surprising power of multiplying, but only (3) a slight power of resistance.

Course of the Disease.

In the course of the disease, three *étapes* may be distinguished: (1) meningococcal grippe, the only localisation apt to spread and to form epidemics, as pointed out by the author in 1905, and by Dopter in 1909; (2) septicæmia; and (3) choroido-ependymitis. The *étapes* do not constitute definite stages (periods), as only the second is transient, while the first and the third may last simultaneously for weeks and months. In the first, the process, affecting comparatively resistant structures, chiefly the naso-pharynx, is generally characterised by quite insignificant reactive symptoms.

When comparing systematically, during the course of cerebro-spinal fever, the fluid afforded by ventricular puncture and that obtained from the spinal theca, we soon find that the meningococci multiply principally, or rather exclusively, in the ventricles; and the spinal fluid contains only those cocci that it brought on passing from the ventricles into the subarachnoid space. In addition to this, both fluids generally differ greatly in their qualities, even in cases where there is no evidence of any serious obstacle to communication between them. Two cardinal types may be distinguished.

In the one, the reactive inflammation of the ventricles is quite insufficient; their fluid may appear quite clear to the naked eye; the white cells therein are very few, the mononuclears, lymphocytes, and epithelial cells are largely predominant or exclusively present; in short, suppuration is practically absent, and the reactive process has the character of serous inflammation or even simple irritation. Nevertheless, the ventricular fluid is sometimes directly crowded with extracellular diplococci, and the films may give the appearance of a pure culture. Now, fluid of such character is being continually evacuated into the subarachnoid space, and it is not till it gets there that definite reactive phenomena, suppuration, phagocytosis, and bacteriolysis take place to a greater or less extent. It is evident that the proper and real site of infection lies here in the ventricles, although the suppurative inflammation is completely confined to the meninges.

The other type arises in its purest form when an energetic suppuration, together with phagocytosis and bacteriolysis, has already developed in the ventricles. Films from the ventricular fluid may then exhibit almost the same picture as those from the spinal fluid. A leucocyte count, it is true, shows figures that are from several times to several scores of times as large for the spinal fluid as those for the ventricular fluid. The conclusion, however, that the leucocytes have originated from the particularly active subarachnoid suppuration, must appear erroneous, as the albumin content of both fluids is practically equal. We are compelled to admit that the white cells with their ingested meningococci have almost all come from the ventricles. Their increase in the subarachnoid space is brought about by the resorption of the fluid parts, while the cellular elements are retained by the thecal membrane acting as a filter. An identical opinion has been already expressed by Tinel as to the sheaths of spinal nerve roots, on account of the fact that, on histological examination, they exhibit no inflammatory vascular or perivascular reaction and no infectious nodules.

Explanation of the Anatomical Lesions.

All this brings us directly to the most interesting problem of the explanation of the anatomical lesions. Indeed, if cerebro-spinal fever has been hitherto regarded as a primary purulent meningitis with ventriculitis as a possible secondary, but not necessary lesion; this opinion is based upon the fact that in earlier stages of the disease the ventricular changes are often very slight and sometimes appear to be absent (to the naked eye), while thick and extensive layers of purulent exudate cover the meninges. So authors were induced to assume that this pus is formed in situ as a result of local purulent inflammation. In this supposition, however, they did not take into consideration that the ventriculo-subarachnoid system is filled with fluid which exhibits a certain current, slight, it is true, but nevertheless permanent, as it is secreted exclusively in the cerebral ventricles by the choroid plexuses, and absorbed exclusively throughout the extent of the subarachnoid space. On account of this current we are brought to consider the possibility that the pus cells found upon the meninges may sometimes, indeed, have been produced in situ, if the membrane received for absorption a fluid charged with free meningococci; but that, more frequently, they draw their origin from the ventricles or other parts of the meninges, and only settle down upon the thecal membrane as upon a filter. The largest accumulations of pus must thus arise in the areas where absorption of the fluid is most active. As of the two leptomeninges the arachnoid mater is the chief absorbent one, it will also be more affected. As regards distribution of the pus over the cerebral surface, it principally accumulates over the frontal and the anterior part of the parietal lobes, as we may suppose, because

that is the highest part of the cranial cavity in a reclining patient; and thus the venules of the subarachnoid space must here show the lowest, perhaps even a negative blood pressure, and can exercise, upon the fluid of the perivascular spaces which are continuous with the subarachnoid cavity, a definite sucking action. For accumulation of pus in the spinal theca, sedimentation may also be of some import.

As to the rest, a whole series of factors exist contributing to shape the anatomical picture and let it appear in very numerous modifications: varying intensity of the ventricular infection, different degrees of the reactive phenomena in the ventricles and subarachnoid space, varying level reached by the general immunisation, various impairment of the choroid plexuses in their secretory function; but, first of all, the varying degree of the inflammatory cerebral œdema, and the different modes of behaviour of the cerebral tissue in face of the condition of pressure resulting from œdematous swelling of the brain and the fact that this organ is shut up in a cavity having quite rigid walls.

Effects of Cerebral Œdema.

The highest degrees of cerebral œdema lead by means of circulatory disturbance to death in a fulminating manner; we may here speak of incarceration of the brain. In the acute fatal type, when puncturing the ventricles during life, we obtain an abundant flow of venous blood from different depths as a sign of passive congestion, and in autopsy the picture of cerebral purpura is sometimes well developed. The lumen of the ventricles is considerably narrowed.

If the consistence of the brain is uncommonly soft and flaccid, a condition frequently met with in infants, especially in those bottle-fed, the cerebral œdema and condition of pressure result soon in the narrowing, closing, and finally the obliterating of the sulci of the cerebral convexity. Now, in those parts of the subarachnoid space that have thus lost their connexion with the ventricles, both the infectious and the inflammatory processes disappear immediately. As larger masses of dense pus have not yet had an opportunity to develop, and as fluid containing only moderate amounts of pus cells vanishes readily by absorption, without leaving a trace, the leptomeninges of the convexity may afterwards appear quite unchanged, or, very rarely, some fragile adhesion with the dura mater remains as the only vestige of the completed process. In other cases, however, if larger purulent layers are already present in the sulci, the pus undergoes no absorption, but disintegrates, and is then penetrated by young connective tissue, finally forming in the meninges sclerotic and thickened plaques. After the sulci of the convexity and the anterior part of the base have been closed, the cisternæ of the base remain the only part of the subarachnoid space, within the cranial cavity, that communicates with the ventricles. Consequently, these alone will be filled up with pus. We thus get a full explanation of the pathogeny, hitherto obscure, of the posterior basic type as found in infants.

Swelling of the brain may further bring about a wedging of the oblong cord and the adjacent parts of the cerebellum into the foramen occipitale magnum. In autopsy, the wedged-in parts are separated from the rest by a marked furrow, being the impression of the edge of the foramen. The condition is associated with narrowing of the subarachnoid spaces within the wedged-in parts, and, in life, with signs of impairment of communication between the cerebral and spinal fluids. It may finally result in complete obliteration of the narrowed spaces, eventually fixed by adhesions.

According to my investigations, and contrary to the opinions expressed by many authors, the production of the fluid in the ventricles is never increased, but is lessened throughout the course of cerebro-spinal fever; the pressure of the fluid is therefore only moderately increased, normal, or even lowered. Nor have I ever found obstruction of the foramina Luschki or foramen Magendii. The above-mentioned changes, however, both constituting a consequence of cerebral œdema—i.e., obliteration of the sulci of the cerebral convexity and impairment of communication with the spinal canal, together with inflammatory changes of the membranes confining the basal cisternæ are quite sufficient to explain the pathogeny of hydrocephalus, as they all contribute greatly to impede the drainage of the ventricles.

With the progress of age, the consistence of the brain becomes more and more firm and resistant. Consequently, changes of configuration that would lead to obliteration of the cerebral sulci can develop only after a long duration. The subarachnoid spaces of the convexity thus remaining perfectly passable for a long time, are therefore the site of an active resorption of the fluid, and also of an abundant accumulation of its cellular elements. As the drainage of the ventricles is sufficient, at least in the earlier stages, hydrocephalus does not develop. On the other hand, the brain having but little possibility to change its configuration and to withdraw in that way from the pressure exercised on it by the osseous cranial walls—the pressure of the fluid is quite a different matter—suffers more through this condition, which in its turn manifests itself by violent cerebral symptoms.

In infants with their plastic brain, the cerebral manifestations are, on the contrary, quite colourless, and so the disease remains very often undiagnosed, not only by general practitioners, but sometimes even by most competent examiners. So, when J. Thomson, speaking about the posterior basic meningitis in infants, states that "in a considerable proportion of cases . . . there is a history of antecedent catarrh of the nose, bronchi, or intestines"; that "the three cardinal symptoms of the early stage are *head retraction*, *vomiting*, and *convulsions*," I must admit that I think there is some error in these statements, because I never saw a meningitis begin in that way, and had plenty of opportunities to meet with cases remaining undiagnosed until the third week. Thus, so far as my experience goes, the presumptive antecedent catarrh is to be regarded as the initial period of definite meningitis, and the symptoms of the supposed early stage as a condition of definitely constituted hydrocephalus. To become persuaded of the truth of this assertion, it is sufficient to determine the width of the ventricles: they are already, in the latter stage, considerably dilated, the lumen measuring about 30 mm.

The Ventricles the Essential Site of Infection.

The notion that, in cerebro-spinal fever, the ventricles constitute the only really essential site of infection is, no doubt, of great import for serotherapy, for it points out the fact that this cardinal focus must be attacked first of all by serum, the presence of serum in the subarachnoid space being without significance. In fact, we may count upon a therapeutic effect only if the concentration of serum throughout the ventricular system is so high that it lets the fluid give, with the emulsion of the autogenous strain of meningococcus, the complement-fixation reaction. This concentration must be maintained during several days until the examination of the ventricular fluids—the state of the spinal fluid is unreliable—shows absence of meningococci.

In most cases this aim is easily attained even by epimedullar administration—i.e., by injecting the serum through the lumbar puncture. Indeed, when letting out, before injection, a sufficiently large amount of fluid, injecting adequately large doses of serum, and repeating the procedure every day, we can find—using for the determination a specific anti-horse precipitating serum—the concentration of serum in the ventricular fluid, shortly after epimedullar injection, as high as about 10 per cent., and after 24 hours, before the next injection, not lower than 3, or, at least, 1 per cent. If the standard of

this serum is 1000—i.e., if the serum gives with the patient's meningococcus strain the complement-fixation reaction still in a dilution of 1 : 1000—the curative power of the ventricular fluid shortly after injection may be designated by the figure 100, and 24 hours later by 30 or 10. The sufficient intensity and continuousness of serum action is thus fully realised.

In other cases this realisation may be difficult to obtain when the serum is of low standard, or there are obstacles on its way from the spinal space to the ventricles. The greatest difficulties arise, however, in case of narrowing of the lumen of the ventricles in consequence of cerebral œdema. If so, the serum injected epimedullarly does not penetrate into the cranial cavity, or at least, not into the ventricles immediately after injection. The up and down motion of the fluid which—apart from the above-mentioned current going from the ventricles to the subarachnoid space—exists between the cranial cavity, including the ventricles and the spinal space, and might be able to bring by degrees the serum, present in the latter space, into the ventricles is very active only in normal or slightly changed conditions. Here, as the range of the modifications of volume of the brain dependent on the incessantly varying quantity of blood in the vessels is considerably diminished, owing to the state of œdema and compression, this up and down motion of the fluid must be very slight too. Moreover, the current of the fluid, though secreted in lessened quantity by the affected plexuses, must, in the narrowed ventricles, be much more rapid than usual, and oppose the penetration of the serum. The great importance of the latter factor appears quite clearly when the serum is injected, in such cases, into the ventricles themselves, bilaterally, by means of temporal puncture, and the ventricles thus filled up with almost undiluted serum. In an hour and a half the concentration of the serum in the ventricles may fall as low as 3 per cent., and in eight hours or perhaps sooner reach the level at which its therapeutic action ceases completely. We should then be obliged, if these procedures are at all practicable, to repeat the intraventricular, bilateral injections, at equal intervals, several times daily; or else to wait until, with the impairment of drainage, the ventricles become markedly wider, and thus the conditions for epimedullar or, at least, intraventricular serum administration, more favourable.

Immunisation.

Similarly to the passive immunisation brought about by injected serum, the active immunity developing spontaneously or under the influence of vaccine treatment can only then react on the infectious process if the antibodies appear in sufficient quantity in the ventricular fluid. The albumin standard of the ventricular fluid is generally very low—e.g., 0·02 per cent. This would correspond to a plasma content of 0·22–0·24 per cent., or to a dilution of plasma, when passing with the inflammatory exudate into the ventricular cavity, of about 1 : 400. In such a case the therapeutic power of the patient's serum should be as high as 400 in order to reach the limit of activity within the ventricular cavities. The ability to acquire sufficient general immunity varies largely in different individuals. Some react very promptly and efficiently under the sole influence of the morbid process, while the others do not exhibit any immunisation which could be revealed by the complement-fixation or other serum tests, even after long treatment by autogenous vaccine.

In one of my cases, that of a boy aged 5, who had been insufficiently treated with intraventricular serum injections, a relatively high general immunisation was obtained by the vaccine injected at about weekly intervals rising from the initial dose of 200 millions to the dose of 30,000 millions of cocci, every dose being divided into from 10–40 smaller ones, injected separately under the skin. The value of the patient's serum, determined by complement-fixation reaction, finally oscillated between 100 and 300. The infectious process showed a marked improvement, but exhibited no tendency to definite cessation, and fluids, especially the ventricular fluids, continued to yield an abundant culture. There was an irregularly remittent pyrexia with elevations up to 40° C.; 16 c.cm of the patient's serum, freshly prepared, consequently working also as complement, were then, on the ninety-second day of the illness, injected into the right lateral ventricle. Immediate and complete recovery followed.

Apart from general immunisation, perhaps also some local processes—suppuration or local neutrophilic leucocytosis, local basophilia and eosinophilia, and possibly local production of antibodies—coöperate in combating the infection.

On the other hand, it is a well-recognised fact that suppuration becoming excessive and leading to accumulation of thick pus in the ventricles and the subarachnoid space is one of the causes of fatal issue. It is noticeable that, in these progressively purulent cases, the fluids, both ventricular and spinal, give with the autogenous meningococcus culture a marked complement-fixation reaction, sometimes in high dilutions. Specific serum is generally of no effect in this condition.

Technique of Ventricular Puncture.

To conclude, some words about the technique adopted for the investigations and procedures. As the ventricles form the cardinal site of the infectious process, the examination of the spinal fluid alone is evidently quite insufficient and apt to give a distorted idea of the true bearing of the case. Coincident examination of the ventricular fluid is most desirable if only for practical purposes, and thoroughly indispensable when scientific aims are at stake. So it has gradually become my habit to perform always, on principle, one after another both the lumbar and ventricular punctures; sometimes the puncture of the subarachnoid space of the brain was also performed, and yielded a third fluid for examination. The ventricular puncture is a slight operation easy to perform, not only on infants when we can enter the cranial cavity through the anterior fontanelle, but also on patients of any age when using the channel-borer devised by Goetze for piercing the cranium. This borer is only 1½ mm. thick. Its channel serves to introduce into the bore-hole, before the borer is drawn out of it, the glazed brass wire stretching out of the puncturing needle, and well adapted to conduct the needle afterwards into the bore-hole. The needle is 1 mm. thick, and ought not to be too sharp. No anæsthesia, either general or local, is necessary. The patients usually state that the operation gives them much less pain than the lumbar puncture. Every time a new bore-hole must be made. The procedure is quite safe; I have performed it over a thousand times since the year 1914. The pressure is always determined, as well for ventricular as for lumbar punctures, in a strictly horizontal position of the patient in order to obtain some inkling as to the possible impairment of communication between the cranial and spinal spaces. The number of white cells per c.mm. is estimated by means of the Fuchs-Rosenthal chamber, and the differential leucocyte count, executed in centrifugalised deposit films, dyed with phenol toluidine and Jenner's stain. The basophiles and eosinophiles are thus also kept under observation. They are generally quite absent in fatal cases; in moderately severe ones, rare at the onset, they become more numerous with the progress of improvement, but are most numerous in cases of spontaneous recovery, particularly at the moment of recovery, and may be met with for months afterwards, sometimes in considerable quantities. The number of meningococci per 100 white cells is estimated in toluidine-stained films and calculated per c.mm. The percentage of (1) intracellular, (2) extracellular cocci, and (3) organisms contained in epithelial cells is determined, and, on the other hand, the proportion of (1) well-preserved, and (2) altered cocci. Cultures are made

from the fluid and from the centrifugalised deposit. The fluid often yields a more copious growth, especially when containing extracellular cocci. The puncture of the lateral ventricles may be performed on the vertex either about 1 cm. from the median line, the needle being directed downwards and a little outwards (vertical internal puncture), or about 4–6 cm. from the median line, the needle pointing downwards and somewhat inwards (vertical external puncture). We may also puncture the inferior horn in the midst of the temporal lobe, situated behind the orbit. We then puncture, in the line drawn vertically through the external auditory meatus, or somewhat behind, and several millimetres above the upper edge of the pinna; we direct the needle so that looked at from the front it appears to point towards the palpebral cleft (temporal puncture). The depth of the puncture measures in the vertical procedure somewhat more, in temporal puncture somewhat fewer, millimetres than the centimetres which go to the circumference of the head. The needle—charged with its brass wire, in order not to be obstructed by brain substance—should be thrust in very slowly, millimetre by millimetre, and the wire withdrawn after each advance. The depth at which the fluid begins to flow is noted; then, on continuing to thrust in the needle, the second depth at which the flow ceases. The difference of the two figures corresponds to the lumen of the ventricle along the puncture line. Normally, this lumen measures several millimetres; a lumen narrowed (possibly to complete closure) is a sign of cerebral œdema; on the other hand, enlargement can be thus followed by us closely from the beginning in the cases developing hydrocephalus. The secretion of cerebro-spinal fluid may be determined directly when, after the pressure has been brought down to the zero point, the fluid is tapped out of the ventricles for an hour or two, the amount withdrawn being noted after each interval of five minutes.

Albumin Content of Ventricular and Spinal Fluids.

The albumin is estimated by means of Mestrezat's diaphanoscopic method. The albumin content of the spinal fluid is almost always higher than that of the fluid tapped from the ventricles. The ratio of these two values has been termed by me the "albumin index." If it is higher than 5 (5 : 1), we can assume a stasis of the fluid within the spinal space as the result of impaired communication with the ventricles. If it is lower than 2, the closing of the cerebral sulci would be the cause, the current of the fluid then trending almost exclusively towards the spinal space, and the fluid being there absorbed quickly and thus having no opportunity to charge itself with greater amounts of albuminous exudate. Middle values, 2–5, are found when no such disturbances are present or when their effects counterbalance one another. Low albumin content of the ventricular fluid—e.g., 0·01 per cent.—may be further regarded as a sign that the current within the ventricles is very active. This occurs when the lumen is narrowed and the secretory function of the choroid plexuses but moderately affected. In such cases we also find that after intraventricular serum injection the albumin standard of the ventricular fluid diminishes very rapidly. The concentration of the injected serum in the fluid may be determined with approximate exactitude by using a specific rabbit serum precipitating the horse serum. In addition to this the complement-fixation reaction is performed in a series of dilutions by using as antigen the strain cultivated from the patient. To carry out all these investigations at least 6 c.cm. of each fluid are required.

Bibliography.

Dopter, Ch.: Bulletin de l'Institut Pasteur, 1919, vii., 1007; L'Infection Méningococcique, Paris, J. B. Baillière et fils, 1921.
Drigalski: Deutsche med. Wochenschrift, 1905, p. 982.
Droba, S., and Kucera, P.: Rocznik lekarski, 1906, i. (in Polish), and Das Oesterreichische Sanitätswesen, 1906, No. 50.
Goeppert, F.: Ergebnisse der inn. Medizin u. Kind., 1909, iv.
Goetze, O.: Deutsche med. Wochens., 1912, No. 7.

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THE TREATMENT OF INEBRIETY AND DRUG HABITS.

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ABOUT two years ago I published [1] a few comments on the treatment of inebriety and drug habits, and some later notes may now be of interest. The subject of temperance has attracted a great deal of attention from our legislators and a section of the public for many years, but, from the medical side, as far as treatment and cure of inebriety are concerned, very little has been done. A step forward was taken when it was realised that inebriety can be a disease as well as the result of weak will and wickedness.

Up to the present no specific for the disease has been found. The only definite line of treatment which has met with any degree of success has been the McBride method, employing atropine and strychnine. The chief alternative to this method has been the confinement of the patient for a considerable period in the hope that the drink craving would die down. The hope has proved futile. Patients under restraint without treatment almost invariably relapse as soon as they regain their freedom. The atropine treatment has given moderate results in a certain type of case and is still used in many homes, mainly, one fancies, for want of a better. Personally, I found, after fair trial, that this treatment and its various modifications was not a cure, and only a help in certain cases.

After trying many drugs, and with the assistance and advice of Dr. Harrison Martindale, I came to the conclusion that three substances were certainly of value used hypodermically. These were strychnine, 1/60 gr., twice daily; colloidal gold (sterules), 1 c.cm., three times daily, and calc. glycerophos., 2 gr., in 3 c.cm., 1·5 c.cm. once daily. Given by the mouth, in frequent small doses, I found the following all extremely useful: nux vomica, cinchona, kola, damiana, and gentian. Nux vomica by the mouth often gives better results than strychnine hypodermically. The following doses are best: Tr. nux vomica, 1 to 3 ♏; tr. kola, 10 ♏; tr. cinch. co., 10 ♏; ext. damian. liq., 10 ♏; inf. gent. co. conc., 12 ♏. These are best given, with ext. glycyrrh. liq., 5 to 10 ♏, in a teaspoonful of water, every two hours from 8 A.M. to 8 P.M. The nux vomica can be increased or reduced according to indications, and the same applies to the damiana, which is most useful in certain cases. Ammon. brom., 4 gr., and pot. brom., 1 to 2 gr., may be added at first, if indicated. I also found that Catha (5 gr. tablets Martindale's ext.) removes the craving for alcohol and morphine and the depression attending their use in a remarkable way in many patients. Its action is somewhat similar to that of caffeine. Other drugs proved of

[1] THE LANCET, 1922, i., 691.

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Gruber, G. B., and Kerschensteiner, F.: Ergebn. d. inn. Medizin u. Kinderh., 1917, xv., 413.
Lewkowicz, K.: Przeglad lekarski, 1900, Nos. 48–52 (in Polish), and Jahrbuch f. Kinderh., 1901, lv., No. 3; Discussion on the Report of Droba in the Medical Society of Cracow, 1905, Przegl. lek., 1906, pp. 70 and 98; Przeglad lek., 1916, Nos. 1–2 (Polish), and Wiener klin. Wochenschrift, 1916, No. 8; Przeglad lek., 1917, No. 45 (Polish), and Wiener klin. Woch., 1918, No. 21; Przeglad lek., 1919, Nos. 16–18 (Polish), and Archives de Médecine des Enfants, 1919, No. 12; Przeglad lek. 1920, No. 3 (Polish), and Archives de Médecine des Enfants, 1921, No. 9; Rozprawy Akademji Nauk Lekarskich, 1922, i., 129 (Polish); Rozprawy Akademji Nauk Lekarskich, 1922, i., 367 (Polish), and Archives de Médec. d. Enfants, 1924, Nos. 3 and 4; Polska Gazeta lek., 1922, No. 5 (Polish), and Monatsschrift f. Kinderh., 1923, xxvi.; Polska Gazeta lek., 1922, Nos. 51–52 (Polish), and Monatsschrift f. Kinderh., 1923, xxvi.; Monatsschrift. f. Kinderh., 1923, xxv.
Mestrezat, W.: Le liquide céphalo-rachidien normal et pathologique, Paris, A. Maloine, 1912.
Tinel: Thèse de Paris, 1910 (quoted by Dopter).
Worster-Drought, T., and Kennedy, A. M.: Cerebro-spinal Fever, London, 1919, A. and C. Black.

use in some cases. Various hypnotics must be used, and the most useful are chloralamide, methylsulphonal, and luminal. In drug cases sulphonal is often best. One can give up to 75 gr. of chloralamide and 60 gr. of methylsulphonal. When one drug alone fails, an excellent night's sleep is often obtained by giving a dose of the second three hours after the dose of the first drug. Chloralamide is safe, and can be given to patients in very poor health.

With regard to general treatment, ambulatory treatment nearly always fails and institutional treatment is essential. It is found also that patients do better in a small than in a large institution. In a large one they are apt to split up into cliques, and a drinking clique is formed whose members only wish to be patched up preparatory to starting another drinking bout. They have no intention of remaining cured, and are apt to lead other patients astray and introduce secret drinking into the establishment. In a small home patients are more under the direct observation of the doctor, and the moral influence is greater. It is advisable to place patients on parole after the first week or so. When they know they are trusted they seldom break their word, and if they do it is easily noticed in a small home that they have taken alcohol, and parole can be withdrawn.

In treating this class of case it is not only a question of what drugs to use, but also how to use them, and there is no doubt that the successful treatment of inebriety depends a good deal on the experience of the physician and the technique employed. Undoubtedly the manner of withdrawal of the stimulant is a very important point. As Dr. F. Hare has shown, nothing is to be gained, and frequently a great deal is lost, by a sudden withdrawal. From the third to the sixth day onward direct suggestion, applied in the hypnoidal state, is useful in many cases. At times sleep can be produced by it without the use of hypnotic drugs at all.

Results.

That treatment on the above lines is effective has been proved by the past few years' results at Bay Mount. Out of all cases treated between September, 1922, and September, 1923, in which a favourable prognosis was given before treatment was commenced, 92–3 per cent. have remained teetotal for from five to 17 months, and are still abstainers. In case it is suggested that this high percentage of successes is due to the exclusion of all except the mildest cases, I indicate the points which decided classification.

1. *Heredity.*—Patients with a history of insanity in the family were excluded, but an alcoholic ancestry of itself did *not* lead to exclusion.

2. *Health.*—Patients were excluded who were suffering from any disease which might drive them to drink.

3. *Age.*—Patients over 55 years were excluded, if the habit was of long standing.

4. *Unwilling Patients.*—A patient who came against his will, or to please his relations only, was excluded.

Apart from patients excluded for the above reasons, severe and chronic cases were included. If we take cases in which a good prognosis was not given, we find that over 50 per cent. of these have remained teetotal to date. When it is explained that several cases are included in this class who, for business or other reasons, did not complete the treatment, the results are even better than the figures indicate. I append three examples of cases in which a good prognosis was given, and three in which it was withheld.

1. Male, aged 52, had been drinking over a bottle of whisky daily for several years. Father a moderate drinker, grandfather a heavy drinker. Patient depressed, tremulous, sleeping badly, and appetite moderate. Blood pressure 160. Urine, trace of albumin. This patient did well, and left in better health than he had enjoyed for over five years, and has remained teetotal over 15 months.

2. Male, aged 48, had been drinking to excess since 1914; a few days' moderate drinking, then 48 hours' heavy drinking, then an abstainer for about three weeks. Father drank heavily for years. Several brothers also drank to excess. Patient very nervous, sleeping badly, and appetite poor. Blood pressure 132. Urine normal. After treatment patient had no desire at all for alcohol at his usual time for craving, and left in excellent health. He has remained teetotal for 12 months.

3. Female, aged 35, married. She had taken alcohol in moderation for some years, but after marriage some five years ago she began to drink to excess when alone, and gradually got to over a bottle of whisky a day. Had atropine treatment a year ago without benefit. Father and mother took a good deal of alcohol. Patient in fairly good condition, but not sleeping well. Blood pressure 125. Urine normal. Patient did well, and left in excellent health without any craving, and has remained teetotal to date, 11 months.

Bad prognosis cases:—

1. Female, aged 55, married, had been drinking steadily for over 15 years, taking one and a half bottles of whisky a day. Father and brother both drank to excess. Patient very thin, tremulous, and sick in the morning. Appetite small. Patient spent much time in bed and had no interest in life. Blood pressure 156. Urine normal. She did well under treatment, gaining 12 lb. in weight, and lost all craving, and took an interest in life again, getting up for breakfast and staying up all day. Husband reported 12 months after that she was teetotal and taking great interest in her home.

2. Male, aged 57, single, had taken alcohol all his life, but was teetotal from 1899 to 1905. Since then had been drinking steadily to excess. Mother mentally weak, and one brother died from drink. Patient very energetic, playing games all day long. He sleeps well, eats moderately well. Very tremulous and obviously eccentric and excitable. Under treatment he lost all desire for alcohol and left in good health, having lost his tremor, and has remained teetotal to date, 12 months.

3. Female, aged 56, widow, a notorious drunkard, who had had treatment many times in various establishments. She had been drinking heavily for years, breaking out every two or three weeks. Family history nothing to note. Patient had chronic bronchitis and was sleeping very badly. Appetite was small and capricious. Blood pressure 182. Traces of albumin in urine. Patient left after six weeks' treatment, having lost all desire for alcohol, and sleeping pretty well and eating well, and able to walk two miles. Has remained well and teetotal ten months to date.

Under this method of treatment, apart from a cure, patients get over the acute symptoms of alcoholism in a remarkable way. Usually within seven days they sleep six or seven hours at night, eat very well, and have lost all tremor, and, in fact, show very few outward symptoms of their drinking bout.

Clinical and Laboratory Notes.

EPIDEMIC PLEURISY.

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AN outbreak of this affection occurred in Eton College in May, June, and July of this year. In many respects it was very similar to that described in THE LANCET of July 12th, 1924, as having occurred in the country branch of the Paddington Green Children's Hospital last May. Curiously enough, these two institutions are not more than a mile apart, but, so far as we are aware, there is no intercommunication or connexion between them.

In all, 48 cases came directly under the care of one or other of us, but other cases, in addition to these, occurred in the school. The first began on May 11th and the last on July 15th. All the patients were boys of 14 to 18 years of age. They were scattered irregularly throughout the school, but the fact that some houses had as many as six cases, while others

escaped altogether, seems to emphasise the infectious or contagious character of the outbreak.

There has been little to aid us in fixing the incubation period. One boy was isolated on July 9th with fever and a sore-throat, and when Koplik spots appeared on the 11th he was moved into a sick room which had been vacated some hours previously by two boys who had recovered from epidemic pleurisy. He went through a mild attack of measles, and on July 17th, after several days of normal temperature, became feverish again with left pleurodynia. Next day a well-marked rub was heard. If the disease in this case was caused by direct contact with other boys the incubation period cannot have been less than eight days, but, of course, it is possible that the room or its contents conveyed the infection.

Unlike the Paddington Green cases, the illness often began or was accompanied by a sore-throat, sometimes simply a red granular pharyngitis, sometimes a definite follicular tonsillitis. In 27 of these 48 boys a well-marked throat lesion was noted. Swabs were taken of some of them, and there was reported a free growth of streptococci, with fewer colonies of *Staphylococcus aureus* and no diphtheria bacilli.

Another difference from the Paddington Green patients is that they never, with one possible exception, really suggested a pneumonia. Some were worse than others, but in no instance was the boy very seriously or acutely ill. In fact, it was remarkable how little constitutional disturbance there was in most of them. Even with a temperature of 103° or 104° F., and a loud rub, there was generally comparatively little distress. Cough was conspicuous by its absence, and there was never any sign of involvement of actual lung tissue.

In all cases there was more or less severe pleurodynia, but in only 17 out of the 48 did we satisfy ourselves that we heard a pleural rub. When a rub did appear it was often very loud indeed, and some patients could themselves feel or hear the creak at the end of inspiration, often long after it had ceased to be acutely painful. A marked feature was the liability to relapse, each rise of temperature being accompanied by the appearance of a fresh patch of pleurisy, three or even four relapses having occurred in some cases. No case had any signs of an effusion. Joint pains and albuminuria were absent. Apart altogether from relapses, many of these boys took a long time to get well, and some became anæmic and debilitated and had to be sent away on sick leave.

It is noteworthy that we have seen during the last few months several cases of a similar nature in patients in the immediate neighbourhood, apart from the epidemic in the school.

A governess and three children, aged 3 to 7 years, had simultaneously attacks of pyrexia. The governess had severe pleurodynia and the children complained of abdominal pain. In none of them could we detect a pleural rub, but they all relapsed, and clinically appeared to be identical with the cases we were seeing at the same time in the school a mile away.

A hospital nurse was admitted to the ward with pyrexia and abdominal pain, which at first suggested the diagnosis of acute appendicitis. Within a few hours, however, the temperature fell and the pain became confined to the chest and was only felt on deep inspiration.

A motor driver complained of pain in his side; temperature 100° F. There was a definite pleural rub. On the eighth day the physical signs had disappeared and he was apparently quite well again.

In conclusion, the facts suggest that we have been dealing with an infectious disease, showing a predilection for children and young adults, and manifesting itself clinically by producing a primary inflammation of the pleura. The frequency with which inflammation and infection of the tonsils and pharynx were associated with the onset of the illness suggests that the throat was the site of entrance of the causative organism. Whether the streptococcus which was isolated from the fauces in a few cases was in any way responsible for the epidemic it is impossible to say without further investigation. If we consider rheumatic fever as an acute inflammation of serous membranes usually preceded by a tonsillar or pharyngeal affection, with a tendency to occasional epidemic prevalence, a possible relationship between the two diseases suggests itself.

A CASE OF

HORIZONTAL DILATATION OF THE LEFT AURICLE.

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THE following case is similar to that first described in 1901 by Sir Isambard Owen and Dr. W. J. Fenton.[1]

Miss X., aged 26, was first seen in consultation with Dr. C. H. A. Alderton on June 12th, 1921. The matter in debate was whether she was fit to marry, seeing that she had a cough and was very short of breath and had so much pain in the region of the heart. She was known to have had pneumonia and pleurisy at the age of 12, and rheumatism of the heart at the same time. On examination she was found to have the maximum impulse of the heart in the fifth left interspace, well outside the mid-clavicular line, and murmurs were heard at this spot, indicating double mitral disease; the heart was not enlarged to the right. There were signs of consolidation at the left base behind, which explained the cough and yellow expectoration. As the heart-rate was rapid and irregular, she was diagnosed as a case of double mitral disease, auricular fibrillation, and pneumonia. There were no tubercle bacilli in the sputum.

She was not seen again until March 23rd, 1923, when again shortness of breath had become very severe, and she had expectorated about 4 oz. of blood about one week previously. She was also troubled with palpitation. On examination the impulse of the heart was found to be displaced to the left as before, but the mitral murmurs were not so audible. In addition, a large area of dullness had developed to the right of the middle line, which was continuous with the cardiac dullness, reaching up to the third right intercostal space, and well outside the right mid-clavicular line. In the third space the dull area revealed a well-marked systolic murmur and there was distinct pulsation in the same space outside the mid-clavicular line. The spleen was enlarged and readily palpable, and there was increase of the liver dullness two-fingers' breadth below the right costal margin. The diagnosis made was horizontal dilatation of the left auricle to the right, following Sir Isambard Owen and Dr. W. J. Fenton's description in 1901 of the first case.

She was admitted to University College Hospital on March 28th, 1923. To her former symptoms there was added a new one—namely, that after swallowing food pain developed in the right chest, lasting for about a minute. Her nutrition was defective; although her height was 4 ft. 9½ in., she only weighed 5 st. 9 lb. The dullness to the right of the heart was as extensive as before, and pulsation was now felt in the fourth and fifth right spaces as well as in the third and outside the mid-clavicular line. A systolic murmur could be heard at the apex, which was quite distinct from the systolic murmur heard over the area of dullness and pulsation of the right chest. The patient was a little cyanosed and became easily breathless on exertion; there was no ascites or dropsy; the urine was free from albumin; the temperature was normal; the pulse on admission was 100, and on discharge—after 12 days—had reached about 80; the blood pressure was 124 mm. Hg; there was no clubbing of the fingers.

X Ray Report by Dr. R. W. A. Salmond.

This was carried out on March 30th, 1923, and is as follows:—"On the right side of the chest there is a large rounded shadow which shows a pulsating upper margin but no pulsation on its lower margin. This shadow shows more density than the enlarged left side of the heart. In the lateral view the shadow on the right side extends backwards nearly to the spinal column, and is pressing on the œsophagus, so that when a barium feed is given it is definitely held up at the upper margin of the shadow. In addition to the compression of the œsophagus, the trachea and bronchi are displayed to the right. The amount of pulsation seen on the upper margin of the shadows of the right and left sides of the chest is against the shadow being that of a pericardial effusion. There are no obvious signs of disease in the lungs, and no signs of pleural effusion."

[1] Clinical Society's Transactions, 1901, xxxiv., p. 183.

The patient was discharged from the hospital, but died on Jan. 11th, 1924, and it was then confirmed by post-mortem examination that the dull area of the right chest which revealed pulsation and systolic murmur was due to a greatly and horizontally dilated left auricle, the chamber containing 1½ pints of blood.

Post-mortem Examination by Mr. W. G. Barnard.

"There are general hypertrophy and dilatation of all the chambers of the heart, which measures 7½ × 8½ × 4 in. The left auricle is dilated out of proportion to the other chambers, and at the post-mortem examination held 30 oz. of blood; it measures 5½ × 7 × 4 in. and extends laterally from the hilum of the left to the hilum of the right lung and from the arch of the aorta above, to within two inches of the apex of the heart below. The arch of the aorta and the bifurcations of the trachea have both been displaced upwards. The pressure collapse of the free border and lower lobe of the right lung can be seen. The parietal and the visceral layers of the pericardium are adherent universally. There are considerable thickening and rigidity of the free borders of the mitral valve which have fused to form a crescent-shaped opening which will barely admit the tips of two fingers." Microscopic sections of the wall of the left auricle failed to show the presence of any organism.

Comment.

The original account of this condition made a clinical diagnosis possible, for it clearly showed that the left auricle is capable of dilating horizontally to the right, and capable of producing dullness to percussion and pulsation in the upper and outer part of the front of the right chest. Another fatal case producing similar dullness was described by Dr. J. G. Emanuel [2] in March of last year.

I have under observation another case seen with Dr. C. Wyndham Gittens occurring in a woman, aged 60 years, who during the earlier stages of the malady, whilst under observation at the Brompton Hospital, showed by X rays (Dr. Stanley Melville) a limited dark area to the right of the cardiac shadow which I concluded was due to mediastinal growth; later on the above-mentioned dark area gradually increased in size, according to X ray examination. Quite recently it was possible to notice dullness to percussion reaching continuously from the heart outwards beneath the right pectoralis major, the upper margin of which was the third rib, and in the fourth intercostal space beneath the same muscle pulsation could be defined, synchronous with the apex beat; the pulsation reached into the right axilla. The Wassermann test was negative, and although it is impossible to find a history of rheumatism, or signs of mitral disease, it seems very probable that this patient is also suffering from horizontal dilatation of the left auricle to the right border of the chest.

RUPTURE OF TUBO-UTERINE GESTATION,

WHICH WAS CONCURRENT WITH INTRA-UTERINE PREGNANCY.

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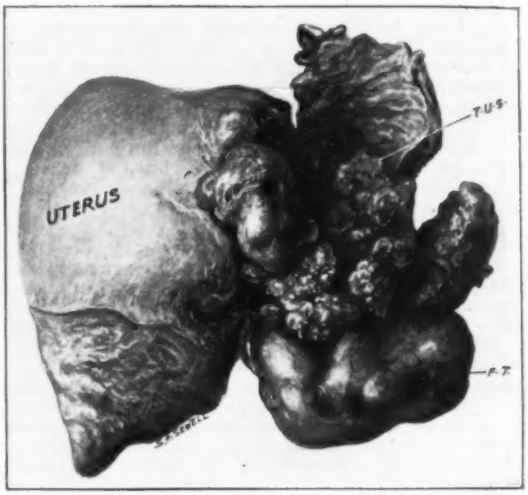
I HAVE now met with three instances of tubo-uterine gestation. The first patient,[3] in whom the sac had been ruptured three days, died after hysterectomy. The other two recovered. In the second case [4] I was able to resect the sac and save the uterus. A year later this patient had a normal labour. The following is a record of the third case:—

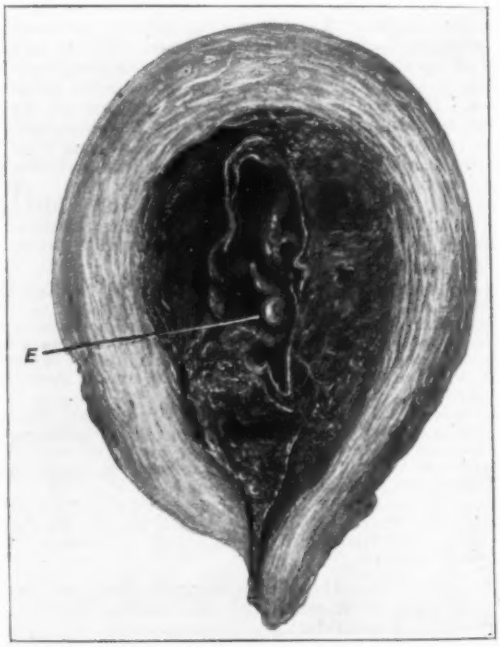
Mrs. A., aged 31, was admitted to the Bedford County Hospital on June 12th, 1923. She had two children, aged respectively 3 years and 13 months. Nine weeks had elapsed since her last period. On June 11th she had a sudden attack of severe pain in the right lower abdomen, followed by nausea, vomiting, and fainting. On admission to hospital she was very collapsed with a pulse of 136. The abdomen was distended and rigid. Immediate operation was decided on and a medium incision was made below the umbilicus. There were much blood and clots in the lower abdomen. A ruptured sac with projecting membranes was found at the right upper corner of the uterus, and this occupied so much of the uterine wall that it appeared impossible to excise it. Supravaginal hysterectomy was performed. Recovery was delayed by a *B. coli* infection of the right kidney, which necessitated residence in hospital for eight weeks.

FIG. 1.



Showing wall of tubo-uterine sac and chorionic tissue.
T.U.S. = Tubo-uterine sac. F.T. = Fallopian tube.

FIG. 2.



Longitudinal section of the uterus showing fœtal membranes and embryo (E).

Description of Specimen Removed.

The uterus is irregularly enlarged to about the size of a ten weeks pregnancy. The right ovary appears to be normal. The right Fallopian tube is rather short and thick and can be traced entire up to its junction with the

[3] THE LANCET, 1923, i., 591.
[4] THE LANCET, 1905, ii., 593.
[4] Ibid., 1917, ii., 122.

uterus. Behind its entry into the uterus the latter presents a bulging swelling which has ruptured and from which projects chorionic tissue. Attached to this and overlying it was a mass of chorionic tissue, forming the wall, a third of an inch thick, of a cavity about one inch in diameter. This cavity is lined by a smooth membrane and from its interior projects a thin filament, probably the umbilical cord. The uterus measures four inches by four. On section there is found to be an intra-uterine pregnancy containing an embryo about half an inch in length. The left Fallopian tube and ovary, which appeared healthy, were not removed.

Remarks.

This specimen is of interest because it exemplifies a comparatively rare condition known as tubo-uterine or interstitial gestation, and also a much rarer condition—viz., a concurrent intra-uterine pregnancy. The uterine fœtus appears to be about six weeks old, and one is led to speculate whether the two pregnancies took place at the same date. The specimen was sent to the Royal College of Surgeons Museum, and the illustrations are by Mr. S. A. Sewell.

AN UNUSUAL REFERRED PAIN IN A CASE OF CHRONIC APPENDICITIS.

BY SIR BRUCE BRUCE-PORTER, K.B.E., C.M.G., M.D. BRUX., M.R.C.S. ENG.

THE following case is published in view of the unusual situation of the referred pain.

L. S., aged 51, consulted me for pain in the right chest over the nipple area. The pain came on originally in 1919, and was very severe. He consulted a physician in Manchester, who suggested angina as a cause. He was next seen by a heart specialist in London, who also suggested angina and advised rest. He was given eight weeks' rest in bed, and, being no better at the end of this time, consulted an osteopath. After some treatment from him he felt better and remained so for a year. A return of the pain again sent him to a heart specialist, who advised Nauheim treatment for it, and he had 12 weeks at Spa with no improvement. He then consulted another physician in London, who suggested duodenal ulcer, and put him on strict diet for many weeks. There was no improvement, so he returned to the osteopath. Being no better, he next sought the advice of a surgeon, who took the view that he suffered from duodenal trouble or gall-stones and advised a period of diet, to be followed by operation if no improvement took place.

On July 4th of this year he consulted me. The heart sounds were normal and the blood pressure 120 maximum and 70 minimum. In pinching up the skin of the abdomen there was definite resistance over the appendix area, but nowhere else. Pressure over the appendix at once caused the patient to cry out, and place his hand over the right nipple area. He said, "Why, that is my pain," and each repetition of the pressure produced an exacerbation of the pain. There was a history of digestive troubles in childhood and during early manhood. I advised early exploration and removal of the appendix, after a very septic condition of the teeth and gums had been cleared up.

Operation.—Sir Alfred Fripp opened in the middle line, and, before removing the appendix, investigated the stomach, duodenum, and gall-bladder. There was no evidence of old or recent ulceration; the stomach was normal in size and the gall-bladder empty. The appendix showed evidence of old and recent inflammation, and there were a few adhesions in the pelvic region. The appendix was removed and the wound closed.

When the patient recovered from the anæsthetic the first thing he noticed was the absence of the pain, and it has not returned. He is now eating ordinary diet, and the change in his appearance is remarkable, for with so many different opinions he had made his own diagnosis of cancer, and removal of this fear has changed his whole mental outlook. Years ago I had a case of a somewhat similar character in which the pain was over the left nipple area. The patient, a young officer, had consulted me for heart disease, and, having in mind the old saying, "If a man complains of his heart think of his stomach," investigation of his digestive region soon revealed a chronic appendix, removal of which at once relieved the præcordial pain.

Reviews and Notices of Books.

REJUVENATION AND THE PROLONGATION OF HUMAN EFFICIENCY.

By Dr. PAUL KAMMERER. London: Methuen and Co., Ltd. 1924. Pp. 252. 8*s.* 6*d.*

THE subject of rejuvenation and the question whether human efficiency can be prolonged by artificial means are of overwhelming interest to the outside public as well as to the medical profession. The search for the elixir of youth is an old one, and the press has not been slow to seize on and to exploit the dramatic interest of Steinach's work. As a result much misrepresentation has occurred, with consequent discredit to what is undoubtedly a praiseworthy piece of physiological research. A book suitable for the general public, which conveys the limitations as well as the possibilities of Steinach's method of rejuvenation, should thus prove of service. Dr. Paul Kammerer has collaborated with Steinach in the past and has an intimate knowledge of his work and personality. His exposition of the subject includes a consideration of the processes of ageing, a brief survey of the part played in these processes by the endocrine glands, and of the results obtained in the laboratory from ligature of the vasa of aged rats. Dr. Kammerer then proceeds to record the results obtained in human beings. He is of the opinion that already sufficient evidence has accumulated to allow of a favourable verdict being given, although with Harms he is prepared to reserve opinion as to whether the operation can affect exhausted nervous tissue. His view is that rejuvenation must act by making it possible for a man to die from normal senility, whereas according to Nothnagel's estimate only 1 in 10,000 dies from such a cause. So confident is he of the genuine nature of the results obtained from vaso-ligature in the human being that he considers it worth while to discuss such questions as the morality of the proceeding and its effect on the community. Surely such questions are a little premature? Whilst we are prepared to admit the interest of Steinach's research, we can hardly feel satisfied, as Dr. Kammerer appears to feel, that the operation as applied to man has already justified itself. On the whole, although instances of decided improvement following the operation have been recorded, the results in man have been far less striking than those obtained in rats by Steinach at Vienna, and Machts in America. We must therefore remain amongst those "super-cautious people" mentioned by the author, who hesitate to generalise hastily. On the whole, however, Dr. Kammerer has given a fair and restrained review of the subject.

OPERATIVE SURGERY.

By WARREN STONE BICKHAM, M.D., F.A.C.S., former Surgeon in Charge of General Surgery, Manhattan State Hospital, New York; former Instructor in Operative Surgery, College of Physicians and Surgeons (Columbia University), in the New York Post-graduate Medical School and Hospital, and in the New York Policlinic Medical School and Hospital. Vol. III. London: W. B. Saunders Company, Ltd. 1924. Pp. 1001. 50*s.*

THE third volume of this large work resembles in scope and arrangement the two volumes already published. Unlike many treatises on operative surgery, it contains full descriptions of operations upon the ear, nose, throat, and eye. The author explains in his preface that in including these he hopes to assist those practitioners whose work lies in centres where specialists are not available. Besides an account of these special subjects this book gives descriptions of operations upon the head, neck, and thorax, so covering extensive ground. Many procedures are described which are not to be found in the usual text-books of operative surgery, and the surgeon who consults this work will get assistance in

almost any operation which he may be called upon to perform. This is an attractive feature. One of the best sections is that which treats of the thorax. Curiously, in an almost encyclopædic work of this description there is no account of Lilienthal's successful case of resection of the thoracic œsophagus, nor of Torek's classical case. On p. 661 there is a small inaccuracy. Jonnesco's operation upon the sympathetic for exophthalmic goitre includes the removal of the inferior cervical and the first thoracic ganglia. It is rather important to emphasise this, since it has been demonstrated that the nerves which influence the activity of the thyroid come almost solely from the inferior ganglion. In a long book it is safe to say that no points stand out for serious adverse criticism. The high level attained in the previous volumes has been maintained.

DISEASES OF WOMEN.

Third edition. By Ten Teachers. Under the direction of COMYNS BERKELEY, M.D., M.C. Camb., F.R.C.P. Lond., Obstetric and Gynæcological Surgeon to Middlesex Hospital. London: Edward Arnold and Co. 1924. Pp. 641. 24*s*.

THE appearance of a third edition of this text-book within five years of its first publication is an index of the esteem in which it is held. It has filled adequately the need for a concise and handy volume dealing with the pelvic ailments of women. In 600 odd pages the book provides a clear exposition of the views of ten well-known London teachers of gynæcology welded into one composite whole under the editorship of Drs. Comyns Berkeley, Russell Andrews, and J. S. Fairbairn. The present edition follows in general lines its predecessors, and minor alterations only are noticeable. For example, the section on adenomyoma is brought up to date, and we notice for the first time the introduction in a student's text-book of the new term Endometrioma in relation with extra-uterine neoplasms of this character. The book does not profess to be exhaustive, but it is ample for the student's requirements. The practitioner also will find much sound information in its pages. A section likely to be particularly useful to the man in practice is that dealing with chronic ill-health in women from the psychological aspect. Neurasthenia in relation to pelvic disorders is only too common, and the chapter which discusses this problem is admirable.

We note that the sections on urinary disorders and intestinal disorders are still retained. In a text-book devoted primarily to the diseases of women it would appear hardly necessary to discuss at length the course of acute and chronic appendicitis—conditions which are so thoroughly considered in works on general surgery. And the completeness with which such rare conditions as inversion of the uterus are treated seems out of place in a text-book of this type. The same may be said of rhabdomyosarcoma of the uterus, interstitial pregnancy, and the technical details of such operations as trachelorrhaphy and amputation of the vulva. The man who reads this book will not perform these operations. If he does he will require more experience than can be gained from woodcuts, however excellent. The student without experience is unable to distinguish between the common and the rare, and too often lays undue emphasis upon impressions gained from text-book illustrations.

The book will continue to occupy its deservedly high place amongst the gynæcological text-books of to-day. Its popularity should be enhanced owing to the reduction in price.

MATTER AND CHANGE.

An Introduction to Physical and Chemical Science. By WILLIAM CECIL DAMPIER WHETHAM, M.A., F.R.S., Fellow and sometime Senior Tutor of Trinity College, Cambridge. Cambridge: At the University Press. 1924. Pp. 280. 7*s*. 6*d*.

THIS book, which is written for the general reader and for those whose main intellectual interests lie in other fields of thought, fulfils its purpose excellently. Few modern activities are possible without some knowledge of the basal sciences of chemistry and physics, but progress in these is so rapid that a very few years abstinence from their study renders the outsider hopelessly out of date. The ordinary text-books of chemistry and physics are laden with detail, and it is a labour to read them save for the direct and numerous purposes which they serve, but in Mr. Whetham's book detail is subordinated to essentials and general principles. The author discusses the main branches of his subjects clearly and philosophically. He has ruthlessly discarded a great deal of material which goes to make up the bulk of the ordinary text-book, and in consequence the general reader is not distracted from the appreciation of the important, fundamental principles. Of their charity, mathematicians and physicists are apt to flatter their readers, and it may be doubted whether the more biologically minded individual will agree that Mr. Whetham employs only "the simplest schoolroom mathematics." But even if some of the equations at first sight look rather terrifying, the author has really been lenient, and we can thoroughly recommend his book to the medical man who desires, not only to keep abreast of other sciences than his own, but also to appreciate the direction of modern medical research.

VENEREAL DISEASE.

Lectures on Gonorrhœa in Women and Children. By J. JOHNSTON ABRAHAM, M.D. Dub., F.R.C.S. Eng.; Surgeon, London Lock Hospitals; Senior Surgeon, Kensington General Hospital. London: William Heinemann, Ltd. 1924. Pp. 142. 7*s*. 6*d*.

THIS book, in the form of nine lectures, gives as brief a description as possible of the usual manifestations, immediate and remote, of gonorrhœa in women and children in order to dwell more particularly on the treatment of the various conditions. The arrangement of the matter is admirable and the author has succeeded wonderfully well in bringing before the practitioner the methods of treatment in a concise and definite form. As is natural in so small a book, certain instructions are laid down dogmatically, which in a larger work would be matter for discussion, but the lines of treatment set forth are sound.

The book is needed in this country and in our colonies. While much literature has accumulated in recent years on the subject of gonorrhœa in the male, little has been written of the disease in the female, and the information here given, unfortunately not well illustrated, will aid the practitioner materially in his treatment of the disease.

The methods of examination set down are sufficiently exact and the same is true of the tests for cure. Practitioners will find this is a valuable little book.

Recent Methods in the Diagnosis and Treatment of Syphilis. Second edition. By CARL H. BROWNING, M.D., D.P.H., and IVY MACKENZIE, M.A., B.Sc., M.D. Part I.: Diagnosis. Revised by CARL H. BROWNING, with chapters by JOHN CRUICKSHANK and T. TANIGUCHI. Part II.: Treatment. Revised by IVY MACKENZIE. With an introduction by ROBERT MUIR, M.D., F.R.S., Professor of Pathology in the University of Glasgow. London: Constable and Company, Ltd. 1924. Pp. 537. 42*s*.

THE first edition of this work appeared in 1911, when the modern lore of syphilis was in its infancy. Since then the literature on the subject has reached enormous proportions. On that account, and with wisdom, the subject-matter has been divided into two parts: I., "Diagnosis," for the rewriting of which Prof. Browning is responsible, and II., "Treatment," which Dr. Mackenzie has undertaken. The matter in the volume is original and has previously appeared in scientific journals; it is practically new, and is

here brought together, giving all the most modern methods and representing a huge amount of work of the highest class. The question of a developmental cycle of the spirochæte is discussed, especially the phenomena of granulation, and the author contents himself with setting down the evidence and leaving the question undecided. The same is true of the question of a neurotropic strain of the organism. The complement-fixation test is discussed fully and fairly, and its significance and limitations pointed out. The precipitation test is also exhaustively dealt with, with special reference to the Sachs-Georgi test. The chapter on the cerebro-spinal fluid by Dr. Cruickshank is well written and gives concisely modern methods of examination and interpretation. The chapter by Dr. Taniguchi on the nature of the syphilitic antibody is admirable and stimulating.

The second part of the work on treatment is sound and moderate in tone, making no fantastic claims for results. Dr. Mackenzie gives fully the scientific data that led up to the use of salvarsan remedies, and enters fully into the question of untoward results of its administration. The author appears to under-estimate the results to be expected from the treatment of tabes, and gives little hope of any effect of treatment of general paresis. No mention is made of the malaria treatment. It is matter for regret that the writer has not devoted a chapter to the use of bismuth, which has now a definite place in therapy of syphilis alongside salvarsan derivatives and mercury. A fuller discussion on tests of functional liver inefficiency, in the attempt to avoid destruction of liver cells by the arsenical preparations, would also have been welcome. The introduction to the work by Prof. Muir is an admirable piece of writing—a monograph in itself, completing an excellent scientific treatise which reflects credit on the authors and their collaborators. In the list of references no recent article of value in the realm of syphilis seems to have been omitted.

Every clinical and laboratory worker in syphilis should buy this work, read it carefully, and then keep it for reference.

ÉTUDE MEDICO-CHIRURGICALES SUR LE DUODENUM. By PIERRE DUVAL, JEAN CH. ROUX, and HENRI BÉCLÈRE. Paris: Masson et Cie. 1924. Pp. 269. Fr.35.

THE duodenum and the viscera in close relation to it constitute a field of growing importance to the surgeon and radiologist, and Duval's clinic affords an unparalleled opportunity to both. The radiologist particularly will welcome the work under review, and if it does not solve all the problems that an attentive study of this region provides, it will certainly help the observer to systematise his ideas.

The book deals with the following subjects: (1) The duodenum in biliary lithiasis; (2) stenosing idiopathic periduodenitis; (3) compression by the mesenteric pedicle; (4) duodeno-jejunostomy; (5) duodenal ulcer; and (6) intoxication in duodenal stasis. Each section is well worked out in considerable detail. Forty pages, for example, are given to the subject of compression by the mesenteric and middle colic arteries. The diagrams and descriptions of this condition and of the operations undertaken for its relief are clear and useful. The section on ulcer follows Akelund's work in its general lines. The skiagrams made by the serial method are well reproduced, but it is doubtful if any useful purpose is served by giving fanciful names to duodenal deformities in view of the fugitive and essentially variable appearances of barium food in the duodenum. We must condone this fault, to which the authors are rather prone, in view of their careful study of the underlying pathological condition. The unpleasing method of writing descriptive lettering across blocks, which has been growing more common of late, has happily been avoided by the use of neat marginal explanatory diagrams.

The work is an important one, written as it is in close collaboration by a physician, a surgeon, and a radiologist, working at the same clinic with abundance of clinical material. It will appeal to all three branches in this country, if most strongly to the radiologist.

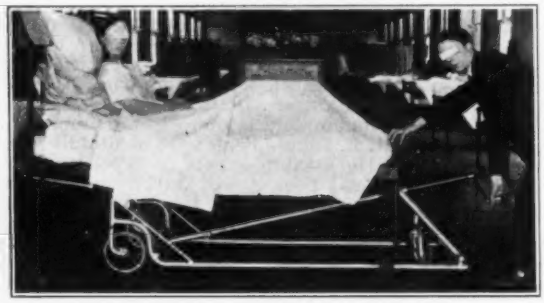
JOURNALS.

JOURNAL OF INDUSTRIAL HYGIENE. July and August.—Interesting facts are given in the July issue by C. O. Sappington when reporting on five years' sickness and accident experience in the Edison Electric Illuminating Co. of Boston. Common colds caused 34·3 per cent. of absenteeism, with a case-rate of 47 per 100 employees, and an average loss of 3·2 days per case. Among women dysmenorrhœa came second, with a rate of 32 per 100. For severity functional nervous diseases headed the list with an average loss of 9·4 days per case; rheumatism, arthritis, and gout came second, with an average loss of 7·4 days. Those affections which made up the bulk of the number of cases were lowest in severity rates, but their aggregate amount of lost time was greatest. A progressive decrease in rates was found as age increased—quite an unusual phenomenon. Women experienced more absenteeism than men. The average case cost was lowest for diseases of the stomach and highest for occupational accidents; home accidents had a high case cost, but only half that of occupational accidents. Sickness caused 20 times as many cases of absenteeism as accidents and seven times as much lost time. The plea put forward in THE LANCET (1921, i., 985) for closer study of the common cold is quoted and supported. —In contrast H. E. Elkind deals with mental hygiene in large mercantile establishments in Boston. Here functional nervous disease cost much more than rheumatism, arthritis, and gout taken together with the common cold. The results obtained by applying psychological tests are given; some positive association was found between native intelligence and clerical ability.—E. Ciampolini draws attention to carbon monoxide hazard in public garages. The blood of a number of men was examined and in 70 per cent. traces of CO were found; headache was common, and gastric symptoms were present in many. Atmospheric tests showed the presence of CO in 77·5 per cent. of garages inspected, amounting to 0·2 per cent. in one case and to 0·15 per cent. in nine. Ventilation was as a rule quite inadequate. Clearly carbon monoxide is a definite risk in garages. ——The issue for August is devoted entirely to experimental studies in lead absorption. A. S. Minot finds that after giving lead acetate to cats by mouth it is absorbed into the circulation only in small amounts; the liver protects the rest of the organism, and most of the lead is excreted in the bile; a small amount reaches the various tissues; bones show a special affinity for lead, and retain it when the other tissues may be clear; in bones lead is a harmless deposit; lead does harm during transport rather than during storage. In a second paper the same author points out that lead compounds when insufflated escape the protective action of the liver and so are rapidly distributed through the organism. Given subcutaneously absorption is so slow as to be of little practical importance.—A. S. Minot and J. C. Aub give the result of analyses of the various tissues of seven patients with known histories of exposure to lead. The findings resemble those found in experimental animals. While symptoms are present lead is distributed generally. After exposure has ceased there is selective localisation in temporarily harmless skeletal deposit.—L. T. Fairhall and C. P. Shaw report on a research into the deposition of lead salts in bone. Lead is quantitatively removed from solution in a short time by crushed bone, where it appears to replace calcium and to exist as a phosphate. The hypothesis is that lead is deposited by a process of adsorption of colloidal lead salts.

New Inventions.

A BED-LIFTING TROLLEY.

To transfer a patient on a trolley from his bed to the operating theatre and back again necessitates several liftings, at least four: (1) If a preliminary injection of morphine has been given, this disturbs the patient and interferes with the action of the drug; (2) if the patient is in pain the lifting may cause a great deal of suffering and even shock; (3) if the operating theatre is at some distance from the ward the patient is liable to suffer from exposure to cold during his journey. I am persuaded that this exposure is a potent factor in the causation of post-operative lung affections. To minimise these disadvantages the patient is often brought to the theatre in his bed, but unless the bed is provided with large wheels, the procedure is not always a simple one. I have therefore designed an appliance which has been tested for several months. The principle of the mechanism is that of an oblong box from which the top and bottom have been removed and the sides fastened together by hinges. It is obvious that by pressing together two opposite edges the whole will collapse. Imagine, passing diagonally across the box, a rod provided with



a screw and so mounted that when it is turned in one direction the box will collapse, and when it is turned in the other, the box will resume its rectangular shape. The actual apparatus is shown in the illustration. It consists of an undercarriage provided with three movable wheels, so arranged that the apparatus can be turned in its own length. At either end of this are hinged the supports of a stretcher top (which can be made a separate piece if one wishes). This is raised and lowered, by a diagonal screw, acting in exactly the same way as in the case of the box. When the screw is turned one way the stretcher is lowered so that it can be slipped under the patient's bed; when the handle is turned in the opposite direction the stretcher is raised, carrying the bed with it. Patient, bed, and trolley can now be easily wheeled to the operating theatre; and, after the anæsthetic has been administered on the bed, the patient can be brought to the side of the table and lifted on to it. If the head of the bed gets in the way of the anæsthetist before the morphia is given the mattress can be readily turned round head to foot. During the operation the bed can be warmed and after the operation the patient is lifted back from the table to his bed. Not only are two liftings definitely eliminated, but the remaining two, being carried out in the theatre, where there are usually many hands to help, are done more gently, and there is no risk of the patient being "bumped" back into bed. With this apparatus it is possible to bring a bed to the casualty receiving room for cases of severe injury or internal hæmorrhage; and in the case of chronic cases it can be used to wheel a patient in his bed about his house or grounds. It can, of course, be used as an ordinary theatre trolley. The apparatus is the result of a good deal of experiment, and I should like to thank Messrs. Arnold and Sons, of Wigmore-street, for their skilful coöperation and assistance. It is made of steel tubing and is extremely strong and at the same time light.

ARTHUR EDMUNDS, C.B., M.S., F.R.C.S.,
Surgeon to King's College Hospital.

Reports and Analytical Records.

AMBRIODIN CENTAUR.

(THE CENTAUR CHEMICAL CO., LTD., BASSISHAW HOUSE, BASINGHALL-STREET, LONDON, E.C. 2.)

SOME years ago we published the composition of this compound as ammonium bromide 5 gr., potassium iodide 1 gr. combined with a laxative, and these are the ingredients given in the analysis published by the Centaur Chemical Company. The formula is therefore well known to medical men as of use when bromide is indicated, and the tablets offer a convenience in administration. Advantages are claimed in the treatment of epilepsy by this combination as opposed to the exclusive use of potassium bromide, and clinical evidence is forthcoming in support of the claim. Each tablet contains ammonium bromide 0·324 g., potassium iodide 0·0648 g. with suitable laxatives and tonics, and from two to six tablets are recommended to be taken twice daily, the dosage and time of administration obviously to be under the direction of the physician. Medical men have also found the preparation of use in general depression, irritability, and the conditions rather loosely included under the term of neurasthenia. Here the recommended dose is smaller, and the employment of the remedy must be watched and the dosage varied according to the effects produced. The tablets are supplied sugar-coated or uncoated, the latter undergoing ready solution in the stomach.

PREPARED FOODS.

(MESSRS. GEORGE KING AND CO.'S FOODS, ALBION FOOD MILLS, SYCAMORE-STREET, LONDON, E.C.1.)

Three foods manufactured by this firm have been submitted to us for examination: (1) Wheaten food; (2) prepared patent cooked oatmeal (Scotch), medium grind; (3) prepared patent cooked oatmeal (Scotch), fine grind. When analysed these were found to have the composition:—

—	Wheaten food, per cent.	Oatmeal, medium grind per cent.	Oatmeal, fine grind, per cent.
Moisture	4·0	3·3	3·8
Mineral matter ..	0·6	2·0	1·9
Fats	1·4	10·5	10·0
Protein	12·3	11·2	12·6
Carbohydrates and cellulosic matter	81·7	73·0	71·7
Matter soluble in cold water ..	10·8	4·8	6·0
Calorie value, per lb.	1807	2010	1989

The wheaten food is ordinary flour of a good grade which has been cooked or heated sufficiently to destroy its gluten-forming capacity, and incorporated with it is a small amount of a finely ground malted cereal. Evidence of this is afforded by the presence of a starch-liquefying diastase. According, however, to the instructions provided for preparing the food, the malt can play no part in converting the starch of the wheaten flour into soluble sugars. Many practitioners, therefore, would deprecate this food being given at so early an age as 5 months.

Oatmeal (medium and fine grind): These are de-husked oatmeals of a high grade which have been submitted to a preliminary cooking process in order to save time in preparing them for the table. The analytical figures are those usually found for good Scotch oatmeals. It will be noted that the percentage of fat is much higher than in the wheaten food. This is characteristic, and is one of the principal reasons why oatmeal is so valuable a food material.

right paravertebral dullness were sound it was an important contribution, but it was the last of a series of signs that had been offered, such as Eustace Smith's murmur, D'Espine's sign, parasternal dullness, all of which were now largely discredited. He was entirely unconvinced that paravertebral dullness was any better than these other signs. The objections he had to it were that it was not a true dullness, it was only impaired resonance, and that normally there was along the vertebral border an area of impaired resonance. There was no local sign that was generally available and the diagnosis was very difficult, indeed, it was often rather a probability than a certainty, but if a child gave a positive von Pirquet's reaction and did not show any evidence of pulmonary or other disease, but had signs of general ill-health, it could be presumed that the child was suffering from tuberculous bronchial glands.

Dr. F. G. CHANDLER (London) said that pulmonary tuberculosis did occur in infancy and childhood, and that mediastinal glandular tuberculosis was common. At post-mortem there was frequently evidence of old tuberculosis in the mediastinal glands and therefore there must have been disease earlier in life. The absence of mortality between the age of 2 and 14 did not imply non-infection. Was it possible that tuberculosis destroyed the most susceptible before the age of 2 and then dealt gradually with the rest? Marked symptoms of tuberculous disease were not infrequently found at 15 years, therefore the disease must have been present before that time. There were many slight warnings of this tuberculous state which had been well defined by Riviere as subtuberculous, but it must not be thought that every case of malnutrition in childhood was due to tuberculosis. He stressed the importance in diagnosis of a barking, dry, paroxsymal cough at night, failure to gain weight, toxæmia as described by Dr. Lapage, paravertebral dullness, diminution of Krönig's bands, and the importance of sputum examination. If it were not possible to obtain sputum the fæces should be examined. In the absence of uninfected food, the findings of tubercle bacilli in the fæces was diagnostic of pulmonary tuberculosis. The X rays, unfortunately, gave the least help in the diagnosis of those cases where help was most required. As to prevention there should be avoidance of infection, a pure milk-supply, early diagnosis, and more frequent routine examination than were undertaken to-day.

Dr. W. B. CROFTON (Dublin) said that 25 per cent. of all cows supplying milk to London were tuberculous, therefore practically all the milk in London could be regarded as tuberculous. He stressed the difficulty of diagnosis of pulmonary tuberculosis in cases where no tubercle bacilli were found in the sputum, and also the importance of the subcutaneous tuberculin test as a help in diagnosis. His experience with his own antigen was that he had never known a case which developed tuberculosis, if after three or four days the reaction was negative.

Dr. J. A. WATT (Derby), speaking of children of the school age, said that he agreed with Dr. Riviere that hilus type of infection was the common form of the disease, and also that right paravertebral dullness was present in these cases. He thought D'Espine's sign was of great value and also the examination of the sputum, but the latter must be done by concentration methods. 45 per cent. of hilus cases showed tubercle bacilli by these methods and the mortality after four years of this group of cases was small, whereas of 60 cases of the adult type of infection which developed from 10 years onwards, 80 per cent. had died in four years. As to the future of cases of the hilus type, he believed that it developed into adult tuberculosis in after life, and he thought public money would be better spent in treating these children than in treating adult tuberculosis.

Dr. ERIC PRITCHARD thought that the diagnosis of this form of tuberculosis required simple means and that the refinements of percussion as suggested by Dr. Riviere were too great. He had had great success with subcutaneous test and did not know why it was not more used. He found no danger in it, but it must be remembered there was a difference between the bovine and human type of infection. A focal reaction was of great diagnostic importance. If there was a general reaction only, then the child must receive specific prophylactic treatment. Malnutrition must not be regarded as an essential point in diagnosis, since tuberculosis occurred in quite well-nourished children. He had used tuberculin prophylactically with great success, and of 40 cases in infants exposed to infection, who gave a focal or general reaction and to whom he had given a six months' course of tuberculin, all were now alive. This disproved Hamburger's and Monti's statement that 90 per cent. of all infants infected with tuberculosis died.

The PRESIDENT said that the discussion had been comprehensive, but the subject chosen for discussion was not tuberculosis in children but pulmonary tuberculosis, and he wished speakers had stated more definitely the type of case they were discussing. What we wanted to know was how frequently we met with pulmonary tuberculosis. Physicians in children's hospitals saw every form of case and therefore the children's hospital could be taken as supplying evidence as to the frequency of the disease. In Glasgow tuberculosis of the lungs during school age was rare. When it was diagnosed death soon occurred. If cases of mediastinal gland tuberculosis were classed as pulmonary tuberculosis, then, of course, it was much commoner. Tuberculous mediastinal glands was one of the most difficult diseases to diagnose. Evidence of improvement when country life was substituted for town life was not evidence that tubercle was present. It was questionable whether with all precautions it was possible to get tubercle-free milk; sterilisation of milk was therefore essential.

Replies.

Dr. SUTTIE, in replying, said that his remarks were based on a large number of radiological examinations. About 1000 radiograms of chests were taken every year. He could not say that an X ray examination was any help in the diagnosis of enlarged mediastinal glands unless these were very large or calcareous. As a matter of fact, all forms of pulmonary tuberculosis except the broncho-pneumonic type A could be simulated by other diseases.

Dr. RIVIERE, in replying, said that, in answer to Dr. Lapage, symptoms could never be anything more than mere indications for examination, although it was necessary to rely on them for evidence of activity of the disease. He thought Dr. Vining's figures substantiated his own view that many cases ought to be found in practice. He agreed that there was no sufficient explanation of paravertebral dullness, but thought it was probably due to enlargement of the bifurcation glands pressing on the right pulmonary artery and resulting in under-expansion of the right lung. He had not often been able to find tubercle bacilli in the sputum, and in answer to Dr. Crofton's remarks about tuberculin, he thought that most people agreed that a mere general reaction was not of great value, although a focal reaction was important, but he had not used this method in children. He did not agree with Dr. Watt that hilus tuberculosis of children became the adult type of tubercle, but he suggested that it might give rise to those deep cases of tuberculosis seen in adults.

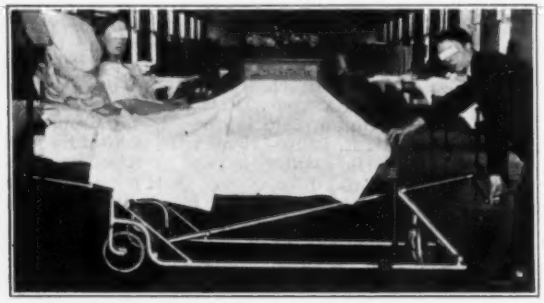
In answer to the President, he said he himself had found these cases did not go to children's hospitals, but were sorted out in schools and sent to dispensaries for tuberculosis or to chest hospitals, but possibly in Glasgow conditions were different.

THE annual meeting of the Medical Sickness, Annuity and Life Assurance Society will be held at Lincoln House, 300, High Holborn, London, W.C. 1, on Monday, Oct. 6th, at 4 P.M.

New Inventions.

A BED-LIFTING TROLLEY.

To transfer a patient on a trolley from his bed to the operating theatre and back again necessitates several liftings, at least four: (1) If a preliminary injection of morphine has been given, this disturbs the patient and interferes with the action of the drug; (2) if the patient is in pain the lifting may cause a great deal of suffering and even shock; (3) if the operating theatre is at some distance from the ward the patient is liable to suffer from exposure to cold during his journey. I am persuaded that this exposure is a potent factor in the causation of post-operative lung affections. To minimise these disadvantages the patient is often brought to the theatre in his bed, but unless the bed is provided with large wheels, the procedure is not always a simple one. I have therefore designed an appliance which has been tested for several months. The principle of the mechanism is that of an oblong box from which the top and bottom have been removed and the sides fastened together by hinges. It is obvious that by pressing together two opposite edges the whole will collapse. Imagine, passing diagonally across the box, a rod provided with



a screw and so mounted that when it is turned in one direction the box will collapse, and when it is turned in the other, the box will resume its rectangular shape. The actual apparatus is shown in the illustration. It consists of an undercarriage provided with three movable wheels, so arranged that the apparatus can be turned in its own length. At either end of this are hinged the supports of a stretcher top (which can be made a separate piece if one wishes). This is raised and lowered, by a diagonal screw, acting in exactly the same way as in the case of the box. When the screw is turned one way the stretcher is lowered so that it can be slipped under the patient's bed; when the handle is turned in the opposite direction the stretcher is raised, carrying the bed with it. Patient, bed, and trolley can now be easily wheeled to the operating theatre; and, after the anæsthetic has been administered on the bed, the patient can be brought to the side of the table and lifted on to it. If the head of the bed gets in the way of the anæsthetist before the morphia is given the mattress can be readily turned round head to foot. During the operation the bed can be warmed and after the operation the patient is lifted back from the table to his bed. Not only are two liftings definitely eliminated, but the remaining two, being carried out in the theatre, where there are usually many hands to help, are done more gently, and there is no risk of the patient being "bumped" back into bed. With this apparatus it is possible to bring a bed to the casualty receiving room for cases of severe injury or internal hæmorrhage; and in the case of chronic cases it can be used to wheel a patient in his bed about his house or grounds. It can, of course, be used as an ordinary theatre trolley. The apparatus is the result of a good deal of experiment, and I should like to thank Messrs. Arnold and Sons, of Wigmore-street, for their skilful coöperation and assistance. It is made of steel tubing and is extremely strong and at the same time light.

ARTHUR EDMUNDS, C.B., M.S., F.R.C.S.,
Surgeon to King's College Hospital.

Reports and Analytical Records.

AMBRIODIN CENTAUR.

(THE CENTAUR CHEMICAL CO., LTD., BASISHAW HOUSE, BASINGHALL-STREET, LONDON, E.C. 2.)

SOME years ago we published the composition of this compound as ammonium bromide 5 gr., potassium iodide 1 gr. combined with a laxative, and these are the ingredients given in the analysis published by the Centaur Chemical Company. The formula is therefore well known to medical men as of use when bromide is indicated, and the tablets offer a convenience in administration. Advantages are claimed in the treatment of epilepsy by this combination as opposed to the exclusive use of potassium bromide, and clinical evidence is forthcoming in support of the claim. Each tablet contains ammonium bromide 0·324 g., potassium iodide 0·0648 g. with suitable laxatives and tonics, and from two to six tablets are recommended to be taken twice daily, the dosage and time of administration obviously to be under the direction of the physician. Medical men have also found the preparation of use in general depression, irritability, and the conditions rather loosely included under the term of neurasthenia. Here the recommended dose is smaller, and the employment of the remedy must be watched and the dosage varied according to the effects produced. The tablets are supplied sugar-coated or uncoated, the latter undergoing ready solution in the stomach.

PREPARED FOODS.

(MESSRS. GEORGE KING AND CO.'S FOODS, ALBION FOOD MILLS, SYCAMORE-STREET, LONDON, E.C.1.)

Three foods manufactured by this firm have been submitted to us for examination: (1) Wheaten food; (2) prepared patent cooked oatmeal (Scotch), medium grind; (3) prepared patent cooked oatmeal (Scotch), fine grind. When analysed these were found to have the composition:—

—	Wheaten food, per cent.	Oatmeal, medium grind per cent.	Oatmeal, fine grind, per cent.
Moisture	4·0	3·3	3·8
Mineral matter ..	0·6	2·0	1·9
Fats	1·4	10·5	10·0
Protein	12·3	11·2	12·6
Carbohydrates and cellulosic matter	81·7	73·0	71·7
Matter soluble in cold water ..	10·8	4·8	6·0
Calorie value, per lb.	1807	2010	1989

The wheaten food is ordinary flour of a good grade which has been cooked or heated sufficiently to destroy its gluten-forming capacity, and incorporated with it is a small amount of a finely ground malted cereal. Evidence of this is afforded by the presence of a starch-liquefying diastase. According, however, to the instructions provided for preparing the food, the malt can play no part in converting the starch of the wheaten flour into soluble sugars. Many practitioners, therefore, would deprecate this food being given at so early an age as 5 months.

Oatmeal (medium and fine grind): These are de-husked oatmeals of a high grade which have been submitted to a preliminary cooking process in order to save time in preparing them for the table. The analytical figures are those usually found for good Scotch oatmeals. It will be noted that the percentage of fat is much higher than in the wheaten food. This is characteristic, and is one of the principal reasons why oatmeal is so valuable a food material.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 6, 1924.

THE UNIVERSITY OF LONDON PARLIAMENTARY ELECTION.

THE untimely and regretted death of Sir SYDNEY RUSSELL-WELLS has brought about unexpectedly, and at an interesting period in the history of the University of London, a Parliamentary election, and already there are three candidates in the field whose claims in respect of the University can be gauged by their public utterances and records, although so far all the formal election addresses have not been issued. The three candidates, each of whom may be said to place the interests of higher education above party considerations, are Sir JOHN ROSE BRADFORD, officially a Conservative, Dr. E. GRAHAM LITTLE, an Independent candidate, and Prof. A. F. POLLARD, officially a Liberal; and two points present themselves for decision to the minds of the electors. The first is, whether they will allow party considerations to decide their vote; and the second is, whether subordinating party considerations to the promotion of educational interests—a position which every University elector has a right to take up—they approve or disapprove of the reconstruction of the University of London, as foreshadowed in the recommendations of the Haldane Report. For here those who invite their suffrages are at variance. The intention of the Board of Education to set up a Departmental Committee to consider this Report is the reason given by Dr. LITTLE for his candidature, the assumption being that his opponents will not be adverse to such a Committee being set up, and that its formation implies a new constitution for the University on the lines of the Report. Dr. LITTLE is in entire opposition to the Report, while the other candidates, without endorsing all its recommendations, see the necessity for certain changes which it advocates. The wording of the reference to the Departmental Committee has not been studied by some of the partisans who have made public utterances. It is as follows: "To consider the Final Report of the Royal Commission on University Education in London dated the 27th March, 1913, and, having regard to present circumstances and after consultation with the persons and bodies concerned, to indicate what are the principal changes now most needed in the existing constitution of the University of London and on what basis a Statutory Commission should be set up to frame new Statutes for the University." The action of the Board of Education in setting up the Departmental Committee has been challenged on a hazy understanding of the programme which will lie before that body, it being taken for granted that to consider the Final Report would be to bless it and put it into force.

Of the three candidates it is extremely pleasant to be able to say that they are personally unexceptionable. They can express diverse views on the honest and strong foundation of an intimate knowledge of what they are talking about. Each believes that he represents the right, and this should ensure for the contest close attention from all those of our readers who are interested in higher education, whether electors or not, for fundamental matters in professional training will be on the carpet. Those who believe that the recommendations of the Haldane Report, if carried into effect, would damage the University irretrievably by creating a bureaucratic Senate, and by exalting the teaching colleges at the expense of the external students, will give their votes to the candidate who sees no good in a further inquiry into the constitution of the University. But the new Committee may not, in the altered recommendations that they are certain to make, take the course which has been anticipated by those definitely opposed to the Haldane Report—surmises even when supported by plausible arguments remain surmises. Dr. LITTLE, explaining his candidature as due to the revival by the Government of the recommendations of the Haldane Report, comes forward on the invitation of the University of London Graduates' Association, which is a non-political body, but makes a first-class point for a Conservative platform in suggesting that, as the present state of the University calls for no drastic alterations, there is no need for doing anything. Sir JOHN ROSE BRADFORD is opposed to a Statutory Commission carrying out the recommendations of the Haldane Report, and has modified a previously expressed view as to the abolition of external medical degrees. Prof. POLLARD, forecasting the results of the new Departmental Committee, has stated that he is not in favour of abolishing degrees, granted only on examinational tests, until their place can be taken by something which the student needs and desires more. He comes to the heart of the situation as it affects the medical profession in particular. The constitution of a smaller Senate, or the development of one of the internal colleges to be a centre around which the University revolves, would create situations which are more remote to the interests of the external student than the curtailment or abolition of the right to obtain degrees by examination, without affiliation to a teaching body. This has been the great privilege of the University of London. Its function as an Imperial examining board has been its pride throughout the existence of the University, and it can easily be understood that any attempt to tamper with the privilege arouses stalwart opposition. Yet that privilege was a gift to meet a time, not to satisfy perpetual requirements. Undoubtedly great men and successful men, and some who have been both great and successful, have owed their positions to the extraordinary facilities offered by the University of London for independent and private study, but if those opportunities, which have worked so well in the past, can be replaced by opportunities as wide and as wise, but more in touch with the present, there can be nothing sacrilegious in interference, though justice and prudence would suggest that the interference should be made with all possible respect for existing rights.

General pictures have a way of not being accurate, owing to a necessary absence of detail, and the situation cannot be summed up by saying that we have here a contest between those who think that the function of the University is to train learned men and those who think that the function of the University is to train useful citizens; and yet some such parting of the ways is held by the supporters of the various candidates to be in contemplation. Of course, the function of a university is to do both things, and that is what makes the medical graduate so typical a figure, his academic ideals and his social utility being limited only by the progress of science. Now medicine differs from other callings in the absolute necessity which its pursuit entails upon the student that she or he should receive instruction in an approved school in order to meet examinations whose standard is

not fixed independently by any university or corporation, but laid down by a representative body under Government ægis. Such conditions, it will be seen, are wholly at variance with the picture of the scholar who, failing any suitable environment or chances, wins his way to a degree; while that is the ideal, and a noble one, of external studentship at the University of London. No medical student can dispense with university or collegiate training, and to provide wider opportunities for graduation is the function of those excellent universities whose recent development in our provinces is tangible proof of the progress of education in the country. We cannot sympathise with any movement, through committees of inquiry or statutory commissions, which would prevent properly trained medical students from obtaining the coveted London degree; but it is not accurate to suggest that these students are the product of home study, or representative in any way of the class of external students of whom the University of London has been such an admirable protector. But the University has charges at home as well as abroad, and the London schools have felt that their students, through lack of intimate association with the University, have been placed at a professional disadvantage. The Haldane Report certainly designed to meet this position.

THE TISSUE PATHOLOGIST.

DURING the war, in every branch of medicine, circumstances necessitated the employment as experts of men whose chief claims to such positions were their enthusiasm and devotion to duty. Even in the highly organised German medical service the existence of *ersatz* bacteriologists, surgeons, and so forth was openly recognised. And it must be admitted that, on the whole, the work was very well done. But with the return to normal conditions it was once more justly expected of the expert that he should have an expert's training. In the field of clinical pathology, however, a greater tolerance has been exercised, especially where tissue diagnosis is concerned. The impetus given to laboratory medicine in the last few years, as Dr. KENNETH M. LYNCH, of Dallas, Texas, has recently pointed out,[1] has produced a demand for clinical pathologists out of all proportion to the supply of people adequately prepared to undertake this work. Whereas the simpler laboratory procedures can be satisfactorily performed by the beginner after a comparatively short period of training and practice, the more difficult examinations demand a much more prolonged apprenticeship. Especially is this so in the branch of histological diagnosis which, in the view of Dr. LYNCH, is "the most difficult and exacting in the matters of knowledge, experience, and judgment of all the things that the laboratorian is called on to do." The question naturally arises as to what constitutes the necessary minimum of training for the pathological histologist before he can be considered fit to undertake this work.

In order to gather opinions on this point, Dr. LYNCH sent a questionnaire to a number of leading pathologists in all parts of America. The answers received were practically unanimous in demanding a much more stringent standard and a much more arduous training than might have been expected. The general consensus of opinion was that the candidate should be qualified from a reputable medical school, should have had some experience of hospital service, and should have served an apprenticeship from two to three years in a laboratory through which passes abundant material. While such a training may be considered adequate to equip a man for ordinary routine work a further period of from three to five years "under an able leader, in a service with abundant necropsy and surgical diagnostic material, with full opportunity to observe end-results, should qualify a man of personal fitness to do critical anatomic analysis of any and all diseased tissue." A probation of this magnitude may sound unnecessarily formidable to those whose work lies in other directions, but its reasonableness will appeal to the pathologist in proportion to his experience of histology. The reason why there are so few tissue pathologists of this calibre is not far to seek. The prizes in pathological histology are few and meagre; the best men are rarely attracted to it, and to those who are a large practice in routine diagnosis is uncongenial. It frequently happens, therefore, that tissue diagnosis falls into the hands of those who are ill-equipped to undertake it, with untoward results. The remedy rests with the medical profession, especially with the practitioners of surgery who are chiefly concerned. If first-class diagnosis is demanded, it will be forthcoming. The question is essentially an economic one.

[1] Journal of the American Medical Association, July 12th, 1924.

EPIDEMIC PLEURISY.

WE publish to-day a clinical note by DRS. W. ATTLEE, A. M. ANSLER, and D. C. BEAUMONT describing an epidemic which occurred in Eton College in the early summer of this year. Fully 50 patients, boys from 14 to 18 years of age, were affected, whilst sporadic cases of a similar nature were observed in the neighbourhood. The main features of the disease were sore-throat, sometimes in the form of a granular pharyngitis, and sometimes of a follicular tonsillitis, a pyrexia lasting a few days only but tending to relapse, and pleurodynia often associated with a marked pleural friction-sound. With each relapse there was a tendency for a fresh patch of pleurisy to appear, but cough and pneumonic symptoms were conspicuously absent. Convalescence was somewhat protracted, anæmia and debility not infrequently being sufficient to necessitate the granting of sick-leave. Cardiac, renal, or arthritic complications were never observed. A closely similar epidemic was noted in THE LANCET of July 12th of this year, when Dr. BRUCE WILLIAMSON reported an outbreak which had occurred at the country branch of the Paddington Green Children's Hospital. Differences between the clinical manifestations of these two epidemics were so slight that it is reasonable to conclude that the same causal agency was responsible for both, especially in view of the fact that the two institutions involved are situated within a mile of one another.

Descriptions of such epidemics are a perennial reminder of the obscurity which still envelops even the more important infectious diseases. An official paper, circulated to the medical officers of army units in the north of France in the summer of 1918, gave an account of an epidemic disease which had recently appeared and which the writers termed "three-day fever." It was said to be a condition of mild pyrexia of transient course, without complications or sequelæ. Its brief duration and the absence of grave consequences were said to make isolation and serious treatment alike unnecessary. Yet within a month of the circulation of this document the hospitals and graveyards were being choked with the results of this disease, which by then was recognised as pandemic influenza. We do not yet know to what extent this disease was responsible for checking the final desperate offensive of the German armies, but that in many sectors of the field of war it led to

almost complete arrest of hostilities is a matter of common knowledge. Within six months of that period the ordinary business of life was in many parts of the world temporarily brought to a standstill by the ravages of the disease; in North America the coffin-makers were unable to cope with the demands for their wares; whilst in tropical Africa, Asia, and the Oceanic Islands natives in unknown thousands crawled into the forests to die.

To-day little more is known concerning the agency responsible for these dramatic occurrences than was available at the moment when the document on "three-day fever" was originally drafted. Rival bacteriologists may sometimes indulge in learned disputes on the subject, but no man can say with absolute authority whether certain diseases, such as encephalitis lethargica, are entirely unrelated to influenza. Without suggesting that it is in any way probable, we can say that it is a possibility that minor epidemics such as that recorded in the article in our columns to-day bear some relation to pandemic influenza. The possibility gives an important incentive to efforts to discover their true pathology.

A STATISTICAL REVIEW OF 1923.

THE Registrar-General has issued, in the third week of August, his medical tables [1] for the previous year, and, alongside the statistical "records" which this review contains, should be gratefully noted the timeliness of its appearance. For the tables are of great importance to executive health officers as the basis for their local reports, while last year the review was given out in November, in the previous year not at all. The edge of the interest has been tken off these truly wonderful vital statistics by the forecast issued in January,[2] when the Registrar-General remarked that the birth-rate for England and Wales as a whole was (apart from the war years) the lowest recorded, while the death-rate and infantile mortality were actually the lowest on record. His provisional figures have undergone no substantial modification, the corrected birth-rate for 1923 being 19·7, the death-rate 11·6, and the infant mortality-rate 69. From the figures now given it appears that the actual number of births was 758,131 (or 21,993 fewer than in 1922), the actual number of deaths 444,365 (or 41,864 fewer than in 1922), leaving a plus balance of 313,766, equivalent to a rate of 8·1 per 1000 living, denoting the natural increase of population. This increase shows a higher rate (the Registrar-General calls it an "improvement") than in 1922, when the rate was 7·6 per 1000. The deaths in 1923 were, in fact, little more numerous than in 1862, when the population was hardly over 20,000,000 and the death-rate was 21·4; now it has fallen below 12 per 1000 for the first time. The infant mortality-rate of 69 is a measure of deaths under 1 year of age amounting to 52,582, an appalling enough figure when stated in this form. The mortality of children of school age has also reached its lowest record. In regard to infectious diseases, the death-rates from enteric fever, diphtheria, and phthisis are the lowest on record, as also (with one exception) is that from scarlet fever. Influenza shows the lowest mortality since 1917 and whooping-cough since 1919. Cancer, in the unvarnished words of the report, "shows the highest rate yet received"; the total figures, and those which we have given week by week in our summaries of health officers' reports, denote a vast amount of unrelieved misery which weighs heavily upon medical science. We hope it will not be long before we receive Dr. Stevenson's illuminating commentary upon this compendium, which should in the meantime be studied in the light of Sir George Newman's cautionary tale issued by the Ministry of Health.

[1] The Registrar-General's Statistical Review of England and Wales for the Year 1923. Tables, Part I., Medical. H.M. Stationery Office. 15s.

[2] THE LANCET, 1924, i., 191.

Annotations.

"Ne quid nimis."

A GREAT MUNICIPAL HEALTH OFFICER.

Dr. E. W. Hope's impending retirement from the position of medical officer to the City and Port of Liverpool severs a very intimate connexion. His tenure of office has been synchronous with the great activity in public health matters which has been in progress since the passing of the Public Health Act of 1875. Liverpool was a pioneer in municipal hygiene. The first medical officer of health in England, Dr. W. H. Duncan, was appointed there in 1842. His successor, Dr. W. S. Trench, was followed in turn by Dr. Stopford Taylor, to whom, in 1883, Dr. Edward W. Hope was appointed assistant. In 1887 Dr. Hope became medical superintendent of Park Hill Fever Hospital, and in 1894, on the retirement of Dr. Taylor, he was appointed medical officer of health of the city.

From early days Dr. Hope was associated with the University movement; in 1886 he became lecturer on public health to University College, and subsequently was appointed professor of public health, first at the College when it was affiliated to the Victoria University, and latterly at the University of Liverpool, when it obtained its charter in 1903. Dr. Hope has frequently pointed out that the unenviable notoriety for disease and mortality which characterised Liverpool at the time of his appointment was due in large measure to the rapid growth of the city at a time when public health requirements were disregarded, and in the second place to its peculiar vulnerability to the attacks of imported disease. In 1883 the city had no hospital for infectious diseases, and there was practically no port sanitary administration to check the importation of exotic disease. The great needs of Liverpool necessitated a forward policy, and under the wise guidance of Dr. Hope the city council repeatedly obtained special legislative powers, while utilising to the full the provisions of the public health measures applying to the whole country. When Dr. Hope took office the population of Liverpool was only 540,000; in 1921 it had increased to 817,000, but the total deaths in this larger population were less by nearly one quarter. During this period housing received much attention, for in 1883 there were 23,690 cellars occupied as human dwellings and sanitation was in other respects in a very backward state. In the late 'eighties Liverpool was one of the few places where typhus fever could still be studied. During Dr. Hope's connexion with the city there have been built up a system of hospitals for infectious disease, an efficient and elaborate port sanitary administration, and all the other essentials of a modern civic health department, including an up-to-date school medical service and maternity and child welfare department.

Throughout his work as municipal officer Dr. Hope never came into conflict with independent medical practice. The good feeling existing between him and his medical colleagues found expression in his election some years ago to the presidency of the Liverpool Medical Institution. A recent example of effective coöperation is afforded by the harmonious working of the city council with the Consular Corps, His Majesty's Customs, the Mersey Docks and Harbour Board, the shipowners, and the neighbouring Merseyside sanitary authorities. Dr. Hope himself is known to be in favour of a more complete unification of the medical public health services. In his retirement, where the warm wishes of all public health workers go with him, it is to be hoped that he will still assist us with his wise and practical idealism.

THE TREATMENT OF GLAUCOMA.

GLAUCOMA has given rise to more controversy than almost any other subject in the range of ophthalmology. A new treatment is reported by our Berlin correspondent, who refers to a paper read by Dr. Carl Hamburger before the Berlin Medical Society, advocating the subconjunctival injection of suprarenin. The effect produced, he says, is an enlargement of the pupil and decrease of pressure, while the choroidea becomes anæmic through blocking of the small arteries. The amount injected at one time is ½ c.cm., and the dose has to be repeated as soon as the symptoms recur. By this method he claims to have treated several patients with success. A method of counteracting increased intra-ocular tension by diminishing the quantity of blood entering the eye runs counter to all that has hitherto been taught on the subject. The dilatation of the pupil in itself is a contra-indication, and to cause retinal anæmia would hardly seem to be the best way to combat a disease in which retinal function is gravely impaired. Moreover, any good effect of a drug like suprarenin is bound to be only temporary. The aim of all rational treatment has hitherto been not to prevent the entry of fluid into the eye, but to facilitate its exit. In the normal eye the main channel of exit is Schlemm's canal, to which access is given through the trabecular tissue that occupies the angle of the anterior chamber. When this is made shallow by pressure from behind, due to increased intra-ocular tension, access is difficult, and when the pupil is dilated the angle is made still smaller and the difficulty increased. Hence, the traditional treatment of glaucoma—non-operative by eserin, which contracts the pupil, and operative by iridectomy, which provides an artificial anterior chamber. Often, however, these measures are insufficient, and the modern operations—Elliot's, Lagrange's, Herbert's—aim at providing an alternative exit for the intra-ocular fluid through the sclera. If there is one lesson which modern experience with regard to the treatment of glaucoma has taught, it is the danger of temporising too long. We should therefore hesitate to encourage the trial of any new experimental treatment without convincing reasons in its favour.

UNCENSORED SUGGESTIONS.

IN a scientific service with good discipline there is always the risk that improvements suggested by junior officers will not become known. The administrative officers, the seniors, arrange the work which is carried out by the executive officers, the juniors, whose daily work it is that will be most affected by the new procedures. But it is conceivably possible that even junior officers may have a few useful ideas even if not all of the highest value ("We are none of us infallible, not even the youngest of us"), which at any rate the seniors ought for their own sakes to hear about. We observe that the Medical Corps of the U.S. Navy, in its *Bulletin*, provides just such an outlet for its junior officers by publishing monthly suggestions from them, without any official comment whatsoever. Thus the service becomes aware of the ideas that are working within it long before these have secured official approval. Some day, and no one can tell when, some very valuable thought may emerge. Perkin, we are told, made his first aniline dye at the age of 18, and Pasteur, when he was 20, recognised that there were two kinds of tartaric acid crystals. In a recent (May) number of the *Bulletin* a junior medical officer, anxious to prevent the spread of infectious diseases in ships, states as his opinion that the most effective method would be to search out all cases where infectious disease might be incubating, before definite diagnosis is possible, rather than to carry out a scrupulous and minute disinfection of messes and bedding after the disease has become manifest, and has probably infected others. He calls this subsequent disinfection "bunkum," an expression which seems to suggest disapproval, and he adds that his captains are "astounded" when they find that terminal disinfection is not to be practised in their ships. Nothing will prove the correctness of this particular suggestion better than a statistical investigation, the result of which we hope to find in the *Bulletin* hereafter, for the question is of importance.

THE HEALING POWER OF KINGS.

A WORK of extraordinary erudition and one which has evidently entailed upon its author a vast amount of research has recently been published[1] by Prof. Marc Bloch. As in the case of so many ancient religious customs, the inquiry into the particular subject in hand involves an investigation into many ancillary customs, in this instance the divine right of kings; the quasi-sacerdotal privileges conferred upon sovereigns at their sacring by the holy oil with which they are anointed and by the priestly vestments with which they are clothed; various folk-lore beliefs, such as the curious gifts with which "seventh sons" are dowered and many others. All these matters Prof. Bloch has treated at length, and the result is a volume of great interest. His main theme was handled some years ago in a book entitled "The King's Evil,"[2] by Dr. R. Payne Crawfurd, to whom Prof. Bloch expresses his obligations more than once. We might compare the relation of the two books to the commentary of Servius upon Virgil, for Prof. Bloch may be said to comment upon and illustrate the facts and researches of Dr. Crawfurd in a way which, without at all minimising that admirable work, yet throws an additional flood of light upon a difficult subject, in much the same way as the commentary of Servius lights up, to take one instance, the sixth book of the Aeneid. Prof. Bloch begins by telling a delightful story. In 1340 Brother Francis, a Dominican, Bishop of Bisaccia, chaplain of King Robert of Anjou and for the moment ambassador of Edward III. of England, paid a diplomatic visit to the Doge of Venice with a view to negotiating an alliance, for the struggle known in after years as "the hundred years war" had just begun, although diplomatic efforts had not ceased. The ambassador pointed out that "the most serene Prince Edward, desirous of avoiding a slaughter of innocent Christians, had written to Philip of Valois, who calls himself King of France, proposing that he (Edward) and the French king should decide the point at issue without going to war, by a personal duel, by a combat between six to eight champions representing either side, or by one of the two following trials. If the King of France were as he said the true king, let him expose himself to some hungry lions, for lions it is known will never hurt a real king, or else that he should show himself a real king by healing the sick, which it is well known real kings can always do." But, adds the Bishop, "Philip in his pride rejected these proposals." Such is the text upon which Prof. Bloch founds his learned essay. He discusses at great length the origin of the healing touch in France and repudiates the tradition that it originated with Clovis; he considers that Robert the Pious, the second king of the House of Capet, was the first to exercise the healing powers for other diseases as well as for scrofula. By the time of Philip I., his grandson, the healing was limited to scrofula alone. In the same way as regards England, he considers that the healing of scrofula began with Henry II. or possibly with Henry I., but that neither Edward the Confessor nor any other Anglo-Saxon king pretended to any healing powers as king. Edward, it is true, is traditionally reported to have healed the sick, but as a saint, not in virtue of his kingship. Incidentally, the plate opposite p. 344 is wrongly described as Charles II. touching for the evil:

[1] Les Rois Thaumaturges: Etude sur le caractère surnaturel attribué à la puissance royale particulièrement en France et en Angleterre. Par Marc Bloch, Professeur à l'Université de Strasbourg. Great Britain: Humphrey Milford, Oxford University Press; Strasbourg et Paris: Librairie Istra. 1924. Pp. 542. Fr.30—12*s.* 6*d.*

[2] THE LANCET, 1911, ii., 1012.

it should, as is evident by the legend on the plate itself, be Henry IV. of France. Another interesting point which Prof. Bloch deals with in a learned fashion is the question as to whether kings received any priestly or quasi-priestly quality at their sacring. The upholders of royalty said they did; the upholders of the Papal temporal powers, whom Prof. Bloch calls Gregorians, said they did not. In both England and France the extreme claims of the Papacy were disliked and set at naught as far as might be, witness in France the movement known as Gallicanism and numerous documents quoted by Prof. Bloch, and by Mr. Alison Phillips in a letter on Papal Authority in England, which appeared in the *Times* of July 26th, 1924, in which among other documents he quotes an Act, 10 Henry VII. fol. 18: *Rex est persona mixta cum sacerdote, quia tam ecclesiasticam quam temporalem habet jurisdictionem.* We have not the space to follow Prof. Bloch all through his very careful and richly documented study, his researches into the meaning and history of unction, and into the rivalries between the upholders of the French and English claims respectively to be the only royal houses capable of exercising the rite of healing. Even as late as 1584 Reginald Scott said in his "Discoverie of Witchcraft" concerning healing of the king's evil, "which hath been alwaies thought and to this day is supposed to be a miraculous and peculiar gift, and a speciall grace given to the kings and queens of England." A little further on he maintains in a passage quoted by Prof. Bloch that the cure is not due to any special grace residing in the king. It is interesting to see, however, that the popular taste also trusted to charms, one of which we notice Scott quotes (p. 197, Nicholson's ed., 1886), "Remedies to cure the King's or Queen's Evil is first to touch the place with the hand of one that died an untimely death—Otherwise; Let a virgin fasting laie her hand on the sore and saie; Apollo denieth that the heate of the plague can increase where a naked virgin quencheth it: and spet three time upon it."

THE NEW YORK ACADEMY OF MEDICINE.

THE annual report for 1923 of the New York Academy of Medicine records the steps taken in connexion with the offer made by the Carnegie Corporation in 1922 to provide a million dollars for a new building, provided the Academy furnished the site. A site was purchased at the cost of $754,500, but when preliminary plans were studied in accordance with Academy needs, it was found that the building would cost a considerably larger sum than had been originally estimated by either the Board of Trustees or the Carnegie Corporation. Negotiations with the Carnegie Corporation were renewed with the result that the Corporation requested the Academy to make a new study of its needs and endeavour to have plans prepared for a building which would be considerably less expensive than the original plan, which was roughly estimated between $1,750,000 and $2,000,000. The Trustees decided to appoint a director able to give the necessary time to the plans for the present and future activities of the Academy. This situation was placed before the Trustees of the Rockefeller Foundation with the result that the Foundation help in paying the salary of the director and his necessary expenses. Dr. Linsly R. Williams was appointed director and began his work on Jan. 1st, 1924.

The scope of the Academy has grown steadily since it was founded in 1847, primarily for the purpose of providing a reading-room for its members. The reading-room gradually developed into a large library, and at the present time there is a membership of 1450 resident fellows, and some hundreds of non-resident fellows, associates, and honorary fellows. At present the Academy is housed in a five-story building at 17, West 43rd Street, and in this building maintains a library, which is the second largest medical library in America, consisting of 136,000 volumes and 20,000 pamphlets. It is open to the Fellows of the Academy and during the morning to the general public, and is used by 30,000 readers a year. The Fellows of the Academy hold two stated monthly meetings which are devoted to scientific purposes, and a dozen different sections meet on the various specialties in medicine once a month during the winter. There are also several special lectures held during the year. The Academy is also the meeting place of the County Medical Society and of dental societies and medical associations of various types. It also provides office quarters for the Medical Society of the State of New York and a number of physicians' aid associations. There are also special committees appointed—one on the library, one on education, and one on public health. The work of the committee on public health has recently received notice in our columns. The committee on education directs the work of two former societies—the Society for the Advancement of Clinical Study and the Society for the Advancement of Medical Education. This committee maintains a bureau of clinical information which announces daily the list of operations to be performed in the various hospitals of New York City, and also gives information as to the various post-graduate courses which are open to the post-graduate students in this city. This work, which has only recently been organised, seems likely to develop in a way more or less similar to the post-graduate education which is being carried on under the auspices of the Royal Society of Medicine in London.

CONGENITAL MEGACOLON.

IN THE LANCET of August 2nd we drew attention to a case of this disease communicated to the Medical Society of Hospitals of Paris, in which the distended loop was of enormous dimensions. A monograph of 243 pages has just been published by Dr. G. Tonnini,[1] professor of surgery at the hospital in Mondolfo, which, besides a very complete bibliography and report of a case under his own care, contains a tabular analysis of the 62 cases hitherto published by Italian observers such as Mya and Concetti, who strongly supported Hirschsprung's original conception of the congenital nature of the affection, contributing by their researches, especially in the field of histology, to complete the anatomical picture of megacolon and to explain the changes which are peculiar to this disease. If the much-discussed theory of Hirschsprung is at the present day recognised as true for a certain limited number of cases of dilatation of the large intestine, this is due in a large measure to the validity of the arguments brought forward by Italian authors. To prove this is the task Prof. Tonnini, with the coöperation of Profs. Simonini and Schiassi of the University of Modena, has set himself to perform. A reference to the 62 cases published in Italy shows that there was incontrovertible evidence of congenital origin in the sense expressed by Hirschsprung and Mya, from (*a*) previous history and clinical and anatomical data 22 cases, (*b*) history and clinical data 5 cases, (*c*) clinical and anatomical data 14 cases, and (*d*) from anatomical data alone 5 cases. Five cases seemed to support the contention of Marfan, Neter, and others as to the ætiological part played by unusual length, multiple folds of the iliac sigmoid, and recto-colic kinks. In two cases only was there definite mechanical obstruction, while in nine it was found impossible to assign any causation. This little work may be said to contain all that has been written up to the present time concerning megacolon, and will well repay perusal.

DERMAL MYIASIS AND THE TUMBU-FLY IN SIERRA LEONE.

THE prevalence of myiasis from the Tumbu-fly in Sierra Leone is very considerable, causing much discomfort to man, suffering and even death to domestic animals. The Tumbu-fly, *Cordylobia*

[1] Megacolon Congenito. Premiata cooperativa tipographi, Modena. 1924. Pp. 243.

anthropophaga, has been indicted as the cause of painful boils for the last 60 years, when the disease was first investigated in Senegal, and the life-history and habits of this mysterious fly and its flesh-eating maggot have recently been worked out by B. Blacklock and M. C. Thompson at the Sir Alfred Jones Research Laboratory in Sierra Leone.[1] The *C. anthropophaga* in the adult stage averages about 9½ mm. in length, and is straw-coloured, with darker wings. The male can be distinguished by the approximation of its eyes. In habitat it is widely, though irregularly, distributed in West Africa from Senegal and Lake Chad to the Cape south of latitude 16° north. In Freetown the adult fly can be captured indoors during the dry season from November to April, and when disturbed it flies rapidly, emitting a loud buzzing noise. The bionomics of the insect, hitherto very uncertain, are described by the authors. The female fly deposits the ova by preference in sand, the number of eggs deposited varying from 200 to 300, while the life-span of the adult insect appears to be about 18 days. The larva, when newly hatched, is just visible to the naked eye and presents several interesting adaptive structures, such as a cephalo-pharyngeal skeleton and several cuticular spines which assist in penetrating the unbroken skin of the host. At this stage the larva remains just below the surface of the sand, but on being disturbed emerges, and when it has reached the skin of its disturber quickly crawls to the nearest wrinkle and commences to bore its way in. The larva undergoes three stages of moulting, and precise experiments indicate that in the second and third stages it is unable to penetrate the tissues to the same degree as the newly-hatched maggot. Further, when the larva in the second or third stage is removed from its cavity in the skin, it is not always able to regain its original position. Prior to pupation the mature larva leaves the tissues of its host and, falling into sand, rapidly burrows into it. The puparium, 6·5–11·5 mm. in length, has a characteristic shape. Pupation lasts about ten days, and on emergence the adult fly has undergone four ecdyses, of which the last occurs inside the puparium. The animals most frequently affected in nature are rats, in the burrows of which puparia are commonly found; other animals, such as dogs, cats, and squirrels, are liable to be attacked. As regards man, some interesting observations are recorded suggesting that after a primary myiasis a considerable degree of immunity to subsequent infection may be developed. The best form of treatment appears to consist in spreading a film of liquid paraffin over the opening made by the larva in the skin, after removing the scab. The posterior end of the larva immediately begins to emerge, and the film is then thickened by the addition of more paraffin. Pressure exerted on both sides of the cavity will then expel the parasite. It is interesting to note that the uneducated natives of Senegal have long been able to distinguish the life-history of the Tumbu-fly from that of the Congo floor-maggot (*Auchmeromyia luteola*). These two flies are very similar to each other in appearance, but the natives are aware that in the former case the larvæ live in the tissues of the host and produce boils, whilst the latter, living in the ground and emerging at night, merely feed on the blood of their victim.

WELFARE OF THE BLIND.

A BILL which will come before Parliament after the recess proposes to give a pension to every blind person at 30 years of age, to provide him with a minimum wage, and to ask the State to make a grant in aid of the continuity of his employment. Already the Blind Persons Act, which the proposed Bill is to amend, has reduced the pensionable age for blind persons to 50, and has subsidised schemes of training for industrial employment. Opinions among the blind themselves differ as to the wisdom of these measures. An organisation known as the National League of the Blind, waiting on the Minister of Health on July 31st, urged him to accept the amending Bill and pressed for the abolition of the voluntary system on which the provision of training facilities is at present largely dependent. On the other hand, the National Union of the Professional and Industrial Blind, through another deputation received by the Minister of Health in the same week, strongly objected to the amending Bill. To reduce the age for pensions from 50 to 30, it was stated, would place difficulties in the way of a really effective training being given. Since the productive capacity of the average blind worker was not more than 50 per cent. of that of the normal artisan engaged in the same occupations, the fear was expressed that the new proposals would increase the reluctance of local authorities to speed up methods of training, with the result that the number of employable blind persons would be actually decreased. The blind themselves considered, it was said, that far better results could be got out of the present machinery. The case is one for the legislature to consider carefully from all sides. The spirit of independence which we associate with the blind workers trained at St. Dunstan's is an asset to the community not to be lightly put in jeopardy. Blindness is not the only disability for which the sympathy of the public is called for, and if special privileges for one class of the partially disabled are provided, it is likely that complaints will be heard from other quarters. Moreover, the line to be drawn between the blind and the not-blind is no hard-and-fast one. "Too blind to carry on his ordinary employment" may be a good enough definition for the purpose of a certificate, but certainly not to confer a definite legal status. Nevertheless, for purposes of legal privilege it is necessary to draw the line somewhere; and if a man of 30, whose sight is no better than finger-counting at 20 inches, is to claim a pension, another who can count up to 30 inches may feel aggrieved if nothing is done for him. The difficulty does not loom nearly so large when pensions are not given until the age of 50 as it would if the age were reduced to 30. We agree with the National Union in doubting whether the Bill to amend the Blind Persons Act would amend the lot of the blind.

HOUSEWIFERY IN A HOSPITAL MILIEU.

AN unusual enterprise on the part of a voluntary hospital is announced by Lord Hambleden—the institution under the auspices of King's College Hospital and in its grounds of a school where young girls may receive a ten weeks' course of instruction in the domestic arts and in elementary nursing. The curriculum outlined appears well adapted for its purpose of providing a term of practical instruction in housewifery to follow school life. During the first seven weeks pupils will be instructed in all branches of the work of running the house of residence which they are to share with the pupil nurses undergoing preliminary training. They will also have lessons in cookery, including food values; elementary anatomy and physiology; hygiene, including elementary chemistry of common things; elementary and minor medicine and surgery; the application and making of bandages and surgical dressings; and elementary nursing. For the final three weeks the pupils will be permitted—apparently as a privilege—to take some practical part in the work of the hospital, in the kitchens, housekeeping departments, and the out-patient or casualty departments, but will not be allowed in the wards. The terms for the ten weeks' course will be thirty guineas, inclusive of board residence. It is not clear with what exact object King's College Hospital has decided to enter into competition with the various existing schools of

[1] A Study of the Tumbu-fly (*Cordylobia anthropophaga*), Grünberg, Sierra Leone. By B. Blacklock, M.D., and M. C. Thompson. Annals of Tropical Medicine and Parasitology. Vol. xvii., No. 4, Dec. 21st, 1923.

domestic economy where short courses of training on broadly similar lines are given. It may well be that the institution is designed to be a source of pecuniary profit to the hospital, since, besides paying fees, the pupils will be taking the place of paid domestic help in the pupil nurses' home. There would seem to be no danger of the pupils being exploited indirectly for the benefit of the hospital, since only three weeks' participation in its work are to be allowed. Lord Hambleden states that "the intention is to provide a practical course which will be useful to a girl who may have no thought whatever of becoming a nurse, but desires to gain some useful knowledge and, perhaps, to appreciate some of the joy of service." The first of these inducements is more likely to attract girls now leaving secondary or public schools than the second, since the imagination of the modern girl is unlikely to be touched by the glamour which formerly surrounded hospital life. The course should, however, prove attractive on its merits. Instruction as to how to achieve and maintain the high standard of household cleanliness current in our great hospitals will be welcomed, and, moreover, the teaching on subjects ancillary to medicine is likely to be of more practical use than the corresponding courses at the majority of domestic economy schools. The proposed social intercourse between the pupils and the nurses engaged in the hospital work should lead to a useful interchange of ideas between those paying in money for a brief course of instruction and those paying in prolonged service for a complete training. Girls whose direct activities in the hospital are arbitrarily limited to three weeks' sporadic work in the kitchen or out-patient department may envy those who have free access to the mysterious fascinations of the wards, and in this way recruits to the nursing staff may be obtained. It is also possible that critical young eyes may detect and protest against those defects in our system of training nurses which the Rockefeller Commission set out so clearly. But we are assuming an intimacy of association between nurses already in hospital and pupil housewives which the common tennis-courts and dining-room described by Lord Hambleden will hardly ensure, and it is more probable that the two communities will not, in the American phrase, prove good mixers. We shall watch the development of this new school with much interest.

SCHOOL CLOSURE FOR INFECTIOUS DISEASE.

THE Board of Education has issued a circular to local authorities proposing to amend the Elementary Education Provisional Code, 1922. The lines on which the alterations are to be made are indicated in the circular, where it is announced that the whole matter will be further discussed and explained in detail in a revised memorandum on closure of schools and exclusion from school, to be drawn up under the joint auspices of the Board of Education and the Minister of Health. The main point of alteration evidently deals with the question of school closure. The Board of Education has now come to the conclusion that the best means of preventing a spread of infection during an epidemic is not the closure of whole schools or departments, but the careful consideration of individual children. Such closure is, the circular states, rarely justified on the grounds of health, while on educational grounds it is obviously desirable that schools should remain open. We have in these columns long advocated the watching of individual cases rather than the blind policy of school closure, and now that school closure as a means of preventing financial loss is no longer to be authorised, urban schools throughout the country should become, as they have been in London for the last 15 years, the centre for scientific control of infectious disease. Rural districts with a scattered population present quite a different problem. Control of infection here more often than not is got by prompt closure and notification, and it is to be hoped that special consideration on helpful lines will be given to this point in the revised edition of the code. The circular is welcome evidence that at the Board of Education questions of hygiene receive sound contemplation.

FUR DERMATITIS.

DURING the latter part of the winter 1922–23 a number of women and girls attended hospitals on account of a local irritation around the neck which soon went on to a blotchy erythema and in neglected cases to a condition of chronic eczema. Hundreds of such cases were reported, none of them fatal. Dr. J. H. Sequeira was the first to associate the condition with the wearing of a kind of rabbit skin dyed to resemble beaver, and careful investigation conducted by Prof. A. G. Perkin identified the irritating substance as paraphenylene-diamine or the closely related metaphenylene-diamine. The dyes used were of foreign origin, careless technique having omitted to render the dyed article innocuous by subsequent oxidation. Dr. J. W. Eyre failed to find any pathogenic microbes which could be associated with the causation of the dermatitis. The report [1] by Dr. Allan C. Parsons, just issued by the Ministry of Health, gives an admirable summary of the history of this dermatitis and the stages by which its origin, its distribution, and its causation were worked out to a final conclusion. Two factors determined the incidence, for since only a relatively small number of fur-wearing individuals were affected it was evident that personal susceptibility played a part, and this susceptibility proved to be specific for a certain class of fur. While symptoms sometimes appeared a few hours after contact, in most cases there was a definite latent interval of 2–6 weeks or more between the wearing of the fur and the first signs of reaction. It is satisfactory to be assured, on the authority of the London Fur Trade Association, that the epidemic was exclusively due to foreign dyes and that makers at home had no responsibility for its production. The publication of the report will no doubt ensure the non-recurrence of an avoidable disease.

IN response to the appeal of the Cambridge University authorities for the sum of £33,000 to complete the endowment of a School of Pathology, Mr. Ernest Gates, of Milner Field, Bingley, Yorks, has promised to provide the required amount. The trustees of the Rockefeller Foundation recently offered to provide the University of Cambridge with £100,000 to build a School of Pathology, together with the sum of £33,000 towards its endowment, on condition that the University could obtain a further £33,000 for this purpose. Mr. Gates's generous gift now makes the acceptance of the Rockefeller offer possible.

[1] Reports on Public Health and Medical Subjects. No. 27. H.M. Stationery Office. 1924. 9*d*.

THE Manager of THE LANCET would like to purchase copies of the issue of Feb. 2nd, 1924, for which subscribers may have no further use. He will be pleased to pay 1*s*. each for them. Such copies should be addressed to him at 423, Strand, London, W.C. 2.

STRASBOURG FACULTY OF MEDICINE.—A complete practical course of dermatology and venereology will be held at the Clinic of Syphilitic and Skin Diseases in Strasbourg, from Sept. 22nd to Nov. 8th, under the direction of Prof. Pautrier. The course will consist of 57 lectures in dermatology and 42 lectures in venereology, accompanied by a demonstration of patients and lantern-slides. In connexion with the skin clinic there is a library of 3000 volumes, which will be available to those attending the courses. The enrolment fee is 200 francs. Fuller particulars may be obtained from Prof. Pautrier at the Medical Faculty of Strasbourg.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LXXXVI.—TREATMENT OF ESTABLISHED TABES.

No account, however brief, of the treatment of tabes would be adequate without its preface. Within the central nervous system nerve fibres, once their continuity is interrupted by disease, are incapable of regeneration. Though it may be possible by suitable treatment to prevent further extension some irreparable damage will remain. Hence the overwhelming importance of *early* diagnosis. The diagnosis being made, treatment may be considered under the headings General Régime, Anti-Syphilitic Treatment, and Symptomatic Treatment.

General Régime.

The general principle is to be inculcated that the damaged machinery should not be overloaded. Exertion, mental or physical, should never be pushed beyond the point of fatigue. Since in addition to those nerve fibres which have been already destroyed by the disease there are others whose function is barely maintained and whose continuity, as it were, hangs on a thread, substances which are known to have a deleterious action upon the nervous system should be used with strict moderation. Of these the most important are alcohol and tobacco. Exposure to cold and wet, even if it has no influence upon the course of the disease, may certainly provoke an exacerbation of lightning pains, and is therefore to be avoided. Finally a special caution must be given against excessive sexual indulgence, which, in the experience of most clinicians, has at times been immediately followed by signs of increased damage to the cord.

Anti-Syphilitic Treatment.

Tabes is a late result of a generalised infection by the *Spirochæta pallida*, which has been demonstrated post mortem in the spinal cord and posterior nerve roots of cases of the disease. The symptoms of the illness are due to irritation and destruction of nerve fibres; the progress of the disease is caused by the continued action of the spirochætal poison. Adequate treatment by means of spirochæticidal drugs may fairly be expected to arrest this progress. The tried remedies of this nature at our disposal are arsenic, mercury, and potassium iodide. Of these there is no doubt that arsenic is the most effective; the value of mercury is more doubtful. The late Sir William Gowers expressed the opinion that in cases of tabes energetic mercurial treatment such as was given at one time at Aix-la-Chapelle only did harm. Potassium iodide certainly has not the same favourable influence upon the course of tabes as it has upon meningeal and vascular syphilis. Nevertheless, since both mercury and potassium iodide appear to be effective in syphilis elsewhere in the body, and we are dealing with a generalised syphilitic infection, both these drugs may be given concurrently with arsenic, provided that the doses employed do not upset the patient in such a way as to interfere with the administration of full doses of the more important drug. In this as in other matters the tolerance of the individual patient must be studied. I have met with cases in which the combined course of treatment resulted in malaise and anorexia; yet when the mercury and iodides were withdrawn the patient tolerated full doses of arsenic without discomfort.

Of the three methods of injecting arsenic—intravenous, intra-muscular, and subcutaneous—the intravenous route is to be preferred on practical as well as upon theoretical grounds, provided that the patient has veins suited to the purpose. The practical advantage of this method is its freedom from all pain save the immediate prick of the puncture. In theory it provides the most effective means of submitting the causal organisms of the disease to the immediate influence of maximal doses of the drug. Clinical experience supports this hypothesis, for in cases which eventually show good results from treatment, the first intravenous injections are commonly followed within 24 hours by an exacerbation of symptoms, such as lightning pains or visceral crises, probably indicating a focal reaction to the treatment. The fact that intravenous injections are more liable to produce symptoms of an immediate "toxic" reaction in the patient than subcutaneous or intramuscular doses is no objection to their use. Animal experiments have shown that the germicidal action of arsenobenzol compounds upon an infecting protozoon is roughly proportional to their toxic action upon the host, so that within the limits of safety [1] "toxic reaction" in the patient may be taken as evidence of efficient dosage.

Of the various preparations of arsenic suitable for intravenous injection that known as novarsenobillon best combines simplicity and efficacy, being readily soluble and easy to administer. A dose of 0·9 g. N.A.B. in 10 c.cm. of distilled water gives a perfectly clear solution. Experience has shown that certain unpleasant symptoms such as headache, fever, and shivering which occasionally follow within 24 hours of an injection may be due to the presence of dead bacteria in the water used for the solution. It is therefore advisable to use for this purpose ampoules of distilled water which has been sterilised and sealed immediately after distillation. Such ampoules, containing 10 or 20 c.cm., are easily obtainable. The technique of intravenous therapy lies beyond the scope of this article, but in view of the fear of a "bad arm" after injection, which is sometimes a bar to efficient treatment, two points may be noted. First, the vein to be easily pierced must be adequately compressed, and this is most simply done by applying the pneumatic band of an ordinary sphygmomanometer and blowing it up to a point just insufficient to obliterate the arterial pulse. In the second place the least sign of leakage into the tissues at the commencement of injection should be the signal for withdrawal of the needle and puncture of another vein. Upon the question of dosage no hard-and-fast rules can be laid down. Individual symptoms and individual tolerance have to be considered in each case. The following plan is suitable in the case of a male adult who tolerates the treatment well.

A mixture containing ℥i of the liquor hydrarg. perchlor. and 30 gr. of pot. iod. is given three times daily from the onset. The course of arsenical treatment begins with an injection of 0·45 g.; after a week's interval 0·6 g. is given, and subsequently doses of 0·9 g. at weekly intervals until approximately 5 g. have been given. An interval of six weeks is then allowed during which the mixture is continued, but no arsenic is given. In practice this has been found a safe period to allow for the prevention of cumulative arsenical poisoning. The injections of 0·9 g. are then continued at weekly intervals until a further 5 g. have been given. At the end of this course the patient is allowed six weeks' freedom from all drugs; the mixture and injections are then begun again until a further 5 g. of N.A.B. have been administered, and the patient continues with the mixture for a further six weeks.

Further treatment will depend upon the state of the disease. In the great majority of cases progress will have been arrested, and symptoms in some degree relieved; in this case the patient may be released with the advice to attend for further treatment if fresh symptoms develop, and *in any case* to

[1] Safe preparations are those which bear a label stating "The contents of this box have passed the tests of the Medical Research Council for toxicity and therapeutic activity."

attend annually for a short course as a preventive of further trouble. This course should consist of four weekly doses of 0·9 g. N.A.B. together with mercury and iodide by the mouth as before.

The results of anti-syphilitic treatment carried out upon these lines are encouraging. In the majority of cases the progress of the disease is brought to a standstill; the severity of lightning pains and visceral crises also is frequently mitigated. Some few cases, however, in spite of treatment progress from bad to worse, so that no absolute assurance of relief can be given to a patient. In these cases anti-syphilitic treatment should be continued so long as the patient develops no symptoms of intolerance. Most tabetics bear well the dosage of N.A.B. described. A careful watch must be kept for individuals intolerant of arsenic; for since the poison has a cumulative effect, severe toxic symptoms may continue to develop for several weeks after the last injection has been given.

The W.R. in blood and spinal fluid is often valuable in confirming a diagnosis of early tabes. As a guide to progress and further treatment it is unreliable, since it is by no means rare to discover actively progressing tabes with a positive history of syphilitic infection despite a negative reaction in both blood and fluid. As to the intrathecal injection of salvarsanised serum, the theoretical basis for its use is insecure, it is a complicated, costly, and painful procedure, and there is no certain evidence to show that the clinical results achieved by it are better than those which may be expected from intravenous injections alone.

Symptomatic Treatment.

The severity of lightning pains may be mitigated by means of the coal tar analgesics. Veramon in doses of 6 to 12 gr. is especially useful. Opium should be reserved for rare occasions, as when it may be essential for a special purpose that the patient should obtain complete relief for a few hours.

Gastric crises, if the patient is capable of taking drugs by the mouth, may be partially relieved by the administration of chloretone in 10 gr. cachets (two or three in 24 hours) or an attempt be made to abort the attack by a single dose of 20 gr. Tr. belladonnæ in 10 ℥ doses also has a favourable effect in some cases. Failing these remedies morphia judiciously administered by a nurse at critical periods affords the only measure of relief. In a prolonged attack, warmth, rest in bed, and rectal glucose are essential to combat the prostration. In long-standing cases recourse may be had to operation. Posterior root section is seldom of permanent value; more favourable results have followed section of the pain tracts in the spinal cord, a more delicate but less severe operation than the other.

Bladder disturbances may be of two kinds. Spasmodic evacuation with imperfect control may be relieved by tr. belladonnæ in 5 ℥ doses thrice daily. Atony of the bladder wall with retention may be combated with a similar dose of liq. strychninæ. In either condition the patient should be instructed to attempt to pass water at regular (three hourly) intervals regardless of desire. Retention with overflow calls for regular catheterisation and a daily wash out with 1/2 per cent. acetic acid. The ataxia may be partially compensated by means of the exercises originally suggested by Frenkel. These may be commenced in bed, and with their aid it is sometimes possible to obtain some power of locomotion even for patients long-bedridden.

Perforating ulcers are more easily prevented than cured. The tabetic should be warned never to cut his corns. Charcot's joints in the acute stage should be treated by rest and immobilisation. In the later stages celluloid splints may be of great value in preventing excessive mobility (especially at the knee-joint) without overburdening the limb.

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BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT BRADFORD.

(*Continued from p. 398.*)

SECTION OF PATHOLOGY AND BACTERIOLOGY.

WEDNESDAY, JULY 23RD.

AT the opening session, the President of the section, Prof. CARL BROWNING, being in the chair, DR. ALEXIS CARREL (United States) read a paper on

Tissue Culture.

Dr. Carrel said that his interest in the healing of wounds and the rate of cicatrisation had led him to take up tissue culture as a means of approaching the elementary principles of the problem. The earlier work of Ross Harrison was important as being that of a pioneer, but the technique was rudimentary and the cultures impure. More recently methods had been devised which enabled pure strains of certain tissues to be obtained and to be cultured indefinitely. When this had been achieved it was possible to proceed to the study of the rate of growth and the exact measurement of various factors influencing growth. Pure cultures could be obtained by one of two methods. The first consisted in taking advantage of the greater rate of proliferation of certain tissues—e.g., fibroblasts—which in the course of time outgrew other tissues with which they might in the first instance be admixed. In like manner in a mixture of blood-cells the ultimate survivors were the large mononuclear cells which outgrew the other elements whose vitality was of a much lower order. The second method depended upon the selective action of certain media; thus leucocytes of the large mononuclear type grew well in serum, but poorly in embryonic tissue juices, whilst the converse held for fibroblasts. Once pure cultures had been obtained the labour of keeping them growing was very great since it necessitated frequent subculture, preceded by washing the fragment used in Tyrode's solution. An alternative method had been devised which was of great use in this connexion and consisted in embedding the fragment of tissue under cultivation in some solid retaining medium placed in the bottom of a small glass capsule, with the nutrient fluid floating above it; with such an arrangement the fluid culture medium can be changed every two to three days and the tissue may remain growing and undisturbed for from 15 days to a month. Utilising technique of the variety described Dr. Carrel had maintained chicken fibroblasts for as long as 12 years in active culture, a period which is in excess of the normal life of the animal from which the tissue had been derived. Preparations were exhibited of large mononuclear cells, squamous epithelium, and thyroid epithelium, all of which had been successfully cultivated.

Dr. Carrel had directed his attention particularly to the rate of growth of various tissues and the factors influencing this, and described the method adopted for estimating it. Tissues were endowed with a certain residual growth energy which enabled them to proliferate and live for some time after removal from the body if placed in a neutral medium. This was not true growth, but depended upon factors carried from the parent body into the medium which after a time became exhausted; this feature was more noticeable in embryonic than in maturer tissues. In like fashion the growth-stimulating substances present in the tissues, serum, and body juices were more active in young animals than in older, and the same factor, controlling tissue growth, seemed implicated in the processes of cicatrisation in the body.

Up to the present time Dr. Carrel and his staff had been largely occupied in overcoming technical difficulties and ascertaining what conditions would give the best results. Their investigations of the large field which these methods opened up was only now

beginning. Certain principles had begun to emerge from a mass of experimental data amongst which he would mention that it had been established that the growth energy of cells in vitro was mainly a function of the medium used. Given a suitable medium the fibroblasts of the chick could be grown indefinitely and were immortal. Serum was not a generally suitable medium, but a selective one; it inhibited the multiplication of fibroblasts and epithelium, but not of large mononuclear phagocytes. Plasma alone was not a nutritive medium; certain additional factors, present in embryonic juices, were necessary to promote growth, and in the earlier work of Ross Harrison and others true growth was not present, only survival of the tissue implanted. It had been possible to demonstrate the secretion of cells upon a small scale, notably with leucocytes and the thyroid epithelium. The promise of this method of attacking the problems of biology and pathology was enormous, and at the present time the way was open for the examination of numerous problems; the difficulties, which must not be misunderstood, were mainly those of technique. What was wanted were improvements which would enable tissue cultivation to be carried on not only with the ease with which bacterial cultivation is carried on, but upon a large instead of a microscopic scale. Dr. Carrel was full of hope that these difficulties would be surmounted. At present the number of workers in this field was small, but he hoped that others would take it up, and he looked forward to new ideas and extended results which would follow when more workers brought their interest to bear upon the problems he had discussed.

Dr. S. RICART (Barcelona), who had learned the technique of tissue culture from Dr. Carrel, referred to the importance of the work of the American biologists in this field. He had studied tissue culture and found the difficulties present to be entirely those of technique; once this was simplified the difficulties would be mastered. The life of cultivated tissues was precarious in proportion to the specialisation of the tissues; fibroblasts alone could be cultivated indefinitely. The growth in any case varied with the composition of the medium and was not controlled by other factors. Cells which did not survive underwent fatty degeneration and disintegration. The method had been applied by him to the examination of antiseptics and the comparison of their antiseptic effect with their deleterious action upon the tissues.

The PRESIDENT commented upon the fibroblast-like appearance of the macrophages in some of Dr. Carrel's preparations. With him it had been an article of faith that under certain conditions fibrous tissue cells might become undifferentiated so as to resemble mononuclear cells, but the possibility of the converse taking place had hardly been accepted. The disappearance of polymorphs from a culture of blood elements was comprehensible as the polymorph was the finished product of a definite life-cycle, but it would be interesting to know what would be the fate of its precursors—e.g., myelocytes—in like circumstances. With regard to the increase in amount of growth, he suggested that increase in weight would be the best criterion, if that could be measured.

Mr. C. J. BOND asked how the pH of the media used was determined and how it was regulated.

Dr. J. H. DIBLE said that the speaker had mentioned the necessity of certain substances derived especially from embryonic tissues as stimulating and essential factors for the growth of culture. He asked if anything was known of the biological properties of these substances; were they heat-stable, could they be preserved, or were they labile substances like complement?

Dr. T. G. M. HINE and others asked for details of the composition of Dr. Carrel's media. As made up from published formulæ it was not always satisfactory and sometimes acid, requiring added alkali to reduce its reaction. Dr. Hine had used oxalated plasma and thought it had an antiseptic effect.

Prof. M. J. STEWART said that as one unfamiliar with the technique he was greatly impressed by its possibilities in bearing upon a number of pathological problems. He would like to ask what was the relative phagocytic activity of fibroblasts and macrophages in vitro; also if neuroglia was possessed of any powers of growth and phagocytosis, especially as it possessed the latter faculty to a marked degree in some brain degenerations. He further asked for information as to the behaviour of fibroblasts and epithelium when grown side by side.

Dr. J. E. MCCARTNEY said that he had seen Dr. Carrel working in the Rockefeller Institute and was greatly impressed by the technical difficulties in carrying out this work. He mentioned that success or failure might depend upon the quality of the glassware used, and suggested that the method might be of use in the study of filtrable viruses.

Dr. J. CRUICKSHANK spoke of the results which had been achieved by Dr. A. H. Drew, and mentioned that he was carrying out tissue cultures by the same technique. It was exceedingly important to use pure chemicals. Rat and mouse tumours grew well, and kidney tissue perhaps best of all. He had been impressed by the fact that to grow the fragments of tissue had to be supported in some way, floating fragments showed no growth. He did not quite appreciate the distinction made by Dr. Carrel between growth and survival. If mitotic figures and cellular increase were observed, did not that constitute growth?

Reply.

Dr. CARREL, replying at some length, said that he had never succeeded in cultivating polymorph leucocytes; in cultures made from mixed blood elements they always underwent phagocytosis by the mononuclears. The change of the mononuclear to a fibroblast-like form was not a usual one, but only occurred under special circumstances connected with stresses occurring in the coagulated plasma in the medium. He did not know if it was possible to produce a variety which perpetuated this morphology in culture. Replying to Mr. Bond, the $H^{\bullet}$ion concentration of the medium had to be between 7·4 and 7·8 on the pH scale. Colorimetric methods were used for its estimation, and the condition of all media was tested daily prior to their use.

The nature of the growth-stimulating substance derived from fœtal tissues had been the subject of much inquiry, and its exact nature was still unknown. They had learned, however, that it is an unstable substance, disappearing in a few days at 37° C. and more rapidly at higher temperatures. It is precipitated from solution by protein precipitants and appears to be a nucleo-protein, but cannot be replaced by any known substance of this nature. With regard to the media, a great variety may be used, plasma being the one best suited for stock cultures. The chemicals used must be absolutely pure and the distilled water above suspicion. The refractive index and pH of all solutions was estimated daily in his laboratory prior to their being used. In answer to other questions, he stated that phagocytosis by fibroblasts was very slight, but that shown by mononuclear leucocytes was marked. The cultivation of neuroglia had not been undertaken. With regard to his definition of growth, the presence of mitotic figures and cell multiplication did not mean growth in his sense; there was enough nutritive substance existing in a newly planted fragment of tissue to allow this, and the tissue might live and, in the case of heart muscle, pulsate for a long period and yet show no actual growth, as the fragment gradually underwent progressive diminution. By growth he meant the fabrication of new cells wholely and solely from the constituents of the culture-medium, and increase in the mass of the culture. Weighing the tissue was the ideal way of determining this, but at the present stage it was a technical impossibility.

Mr. A. MALINS SMITH read a paper upon the occurrence of

Protozoal Infections of the Bowel

in inhabitants of this country. He had found *Entamœba histolytica* cysts in a certain number of persons, and had succeeded in infecting kittens with

dysentery from their stools. These persons had never been out of this country. In the examination of a total 2137 persons of different ages, 3·4 per cent. were found to harbour *Entamœba histolytica*. In many of these cases further inves igation showed the infection to be a familial one. Dr. Smith concluded that the presence of *E. histolytica* does not necessarily connote dysentery in the clinical acceptance of the term, but thought that a balance of tolerance might be arrived at between the parasite and the host which was capable of being broken down in favour of the parasite by adventitious circumstances.

Dr. C. E. DUKES demonstrated a modification of the sigmoidoscope, for obtaining direct cultures from the intestinal mucosa in cases of ulcerative colitis.

THURSDAY, JULY 24TH.

At the second session the chair was taken by Dr. A. G. GIBSON. Dr. R. A. O'BRIEN opened a discussion on

Immunity, with Special Reference to Specificity and the Influence of Non-specific Factors.

He said that his contribution to the discussion was directed from the view-point of the laboratory worker whose daily occupation was the carrying out of rigorously controlled experiments, in connexion with the production and testing of sera, vaccines, tuberculins, and other biological products, which necessitated a keen watch for the intervention of any disturbing non-specific factors. Such tests as these were fundamentally dependent upon the rigid doctrine of specificity, which was at the basis of diphtheria antitoxin production, gas gangrene antiserum, and tuberculin and pneumococcal antiserum manufacture. Non-specific factors were encountered in the Wassermann reaction, the agglutination of *Proteus* X 19 in typhus fever, and in the Forssman phenomenon in hæmolysin production.

When an animal was immunised, the resulting production of antibody was a matter which was continued over an extended period and apparently went on after the stimulus of the antigen had ceased, presumably by a continued action of the body cells. It had recently been asked if such output of antibody might not be stimulated by non-specific means: this view had been put forward notably by the Copenhagen workers who claimed to have stimulated the production of diphtheria antitoxin by injection of manganese chloride. In the hands of the speaker and his colleagues no such results had been obtained, and in like manner peptone injections had given negative results. At the same time a certain amount of evidence existed that the phenomenon of antibody production was susceptible of being controlled or directed into certain channels by the simultaneous presence of more than one antigen. As a result of many experiments no evidence was forthcoming that non-specific agents either caused a release of antibodies or in any way modified the course of acute experimental infections. The clinical standpoint was one much harder to evaluate as the conditions of laboratory experiment could hardly be reproduced here, and the psychological factor was a disturbing one. The physician was faced not only by the problem of ascertaining the true result of his experiment, but by the more urgent one of curing his patient. There seemed, however, to be a considerable weight of evidence in favour of some good results being achieved by non-specific therapy in asthma, hay fever, and allied conditions. The matter was one for further development, and however little it appeared in accord with our present rather rigid views of specificity, the lesson of Loeb's "fatherless frog" must warn us against too ready incredulity.

Dr. P. HARTLEY spoke especially of the chemical aspect of the question. He emphasised the enormous degree of specificity associated with the immunity reactions in certain directions, which far out-distanced chemical methods of investigation—e.g., in the differentiation of proteins. The matter was, however, closely allied to the chemistry of the proteins, which alone caused the immunity response and gave the immunity reactions. The two explanations of the phenomena in the field were Ehrlich's chemical conceptions and the more modern physical ones, which, however, failed completely over the question of specificity. When proteins, such as sera, were submitted to ordinary chemical analysis, and their amino-acid constitution investigated, such immunologically different varieties as ox and horse serum gave identical results. When serum was split up into its albumin and globulin fractions a difference appeared between the two fractions, involving mainly the cystine and lysine distribution, but no difference could be noted between euglobulin and pseudo-globulin. Euglobulin was probably pseudo-globulin plus the lipoids of the serum. When studied immunologically, however, the albumin and globulin fractions were sharply different, and there was also well-marked differentiation of the globulins, although there was here some overlapping. Evidently ordinary chemical resolution into the constituent amino-acids did not therefore throw any direct light upon the problem of immunological specificity, and the present-day tendency was to look to the internal structure of the protein molecule as a more profitable subject for examination. The procedure of protein racemisation altered the biological characters of the protein used, and these changes were found to be associated with changes in the optical activity of certain of the constituent amino-acids when the proteins were subsequently hydrolysed. Thus, proteins of the same chemical composition, such as caseinogen from two different animals, when split up after such treatment might resolve in different ways, the resulting products not being identical, and the suggestion was made that these differences might be at the basis of specificity. Some recent work by Avery and Heidelberger had shown that from autolysed pneumococci of the immunological type 2, a soluble specific precipitin for type 2 antiserum might be extracted. This substance was peculiar from the point of view of the present problem in being an impure carbohydrate with only a very low nitrogen content. It would not stimulate antibody production although giving a specific reaction with the type 2 serum. This work appeared to open up a rather different field, and might aid in the resolution of the problem which appeared to be bound up with the chemical structure of the proteins, the most difficult of all the problems in pure chemistry.

Prof. T. J. MACKIE spoke of the varied degree with which the problem of specificity applied over the field of pathology. Specific reactions in the case of typhoid were effective for all bacilli of this group, whilst in the case of *B. coli* it was a much narrower affair, being here generally an individual property of each strain. The possibility of stimulation of non-specific antibodies, which were known to exist, by heterologous antigens must be considered, as well as the effects on the general metabolism of parenteral injections.

The speaker went on to consider instances of non-specific effects which were well known, such as the stimulation of latent typhoid agglutinins in inoculated soldiers by some other infection. More striking were the recent claims made out for the stimulation of antibodies by chemical substances and especially those of Walbaum and Madsen for the enhancement of diphtheria antitoxin production by manganese chloride, which work was disputed by many observers. Personal experiments with hæmolytic antibody, on these lines, had given irregular and inconstant, but in certain cases definitely positive, results; the increase in hæmolysin being occasionally as much as ten times the original titre. The increase, when present, was a temporary one which disappeared in a few days. In other cases normal serum was found to have a weak non-specific protective effect against diphtheria toxin, especially in the case of the local lesions.

Prof. W. J. TULLOCH said that there were two points of view of specificity—firstly, specificity in diagnosis, and, secondly, specificity in therapeusis,

and that the debatable ground lay between these two standpoints. He believed that there were no structural differences between the types of antibody and that theoretically any of the immunity reactions might be used for diagnosis; which one was preferred was a matter of convenience. In many cases such diagnostic procedures were not specific and bore no relationship to immunity—e.g., in the Weil-Felix reaction for typhus and the modern Wassermann reaction for syphilis. There was too great a tendency to be blinded by the main and clamant facts in any case of disease, and to neglect the minor but contributory ones. Diphtheria was not solely an intoxication; there was the factor of infection also to be reckoned with. In this disease antitoxin was only a partial antigen, but fortunately it was effective. In studying disease the mechanism of infection must be considered, along with the mechanism of the production of lesions and of death, to obtain a comprehensive picture of it. In tetanus there is, besides the main toxic factor, the neurotoxin, a secondary though slight leucotoxic aggressin effect, which unlike the toxic factor is specific for the different agglutination types of the bacillus. Greater toxin specificity is illustrated in the botulinus group where the toxin is specific for each bacterial type. Agglutination reactions from the therapeutic point of view are, therefore, ultra-specific in tetanus and diphtheria, but intra-specific in tubercle. In meningococcal infections a middle position is probably the case, for here serological differences seem of therapeutical importance.

Dr. STANLEY DAVIDSON spoke on the alteration of the qualities of antigens by physical and chemical agencies, especially with reference to the effect of "detoxication" and "defatting," as suggested by D. Thomson and G. Dreyer, respectively. A large series of experiments was detailed in which the agglutinins and complement-fixing antibodies produced, in comparable series of animals, by these preparations were compared with those produced in response to the injection of ordinary killed bacterial suspensions. Rabbits were the animals used and *B. suipestifer*, a well-known pathogenic agent for the rabbit, the organism utilised. The results showed very strikingly the inferiority of the treated organisms as provokers of this class of antibody response; agglutinins, which were abundantly produced by the ordinary vaccine, being produced only by a few animals and in very small amounts where the defatted or detoxicated antigens were employed. The same was true, to an even more marked extent, in the case of the complement-fixing bodies. As regards actual protection, only one animal of the whole series survived the test dose, and this was one which had had the unmodified vaccine and had produced the greatest amount of antibody as estimated by in vitro methods.

Dr. D. CAMPBELL spoke of the clinical aspect of specificity, and remarked that natural immunity was often due to factors quite other than specific ones in the sense used in the discussion. He also emphasised the fact that vaccine therapy was not now advocated in diseases in which the causal organism was well known, such as typhoid and pneumonia, but in obscure conditions in which the relationship of the disease to the organisms in the vaccine was extremely doubtful. He spoke on non-specific protein therapy in relationship to rheumatoid arthritis, and considered it the most valuable agent in the physician's armamentarium. The rationale of the treatment seemed in the production of a general reaction in which temperature, leucocytosis, and a possible mobilisation of enzymes played a part. The improvement which resulted was generally in correspondence with the degree of reaction which was provoked. Whilst not claiming that the method removed fibrous adhesions, or resulted in a repair of anatomical changes, he believed that it definitely resulted in an arrest of the progressive nature of the condition.

Dr. E. M. DUNLOP, who had worked with Dr. Campbell, the previous speaker, said that typhoid vaccine was used in these cases. Detoxication damaged the antigenic properties of the vaccine, and its injection did not result in the production of agglutinins and complement-fixing antibodies. In certain cases rather untoward reactions had developed, but in one of these there was a suspicion of a previous typhoidal infection. There was no evidence that detoxicated vaccines would release antibodies in patients who had these in a latent state.

Dr. R. ROW detailed some experiments upon the various fractions obtainable from tubercle bacilli. Complement fixation had failed in his hands with the waxy and ether-soluble bodies, but was generally positive with the non-acid-fast residue. Experiments on the antigenic value of these latter substances for guinea-pigs led to the view that they did somewhat increase resistance to subsequent infection. In cases of natives treated in India by injections of material of this sort some improvement was observable, especially in cases of glandular tuberculosis.

Prof. C. H. BROWNING stressed the importance of the individual factor in animal experiments as a point well recognised in the human subject but one generally overlooked in laboratory animals. There was a temptation to regard the animal too much as an unvarying reagent. He had been struck by the flat contradictions which the discussion of non-specific factors had brought out. Where competent investigators obtained different results it would be more profitable to pursue these investigations and seek out the causes of difference than to leave existing contradictions. Koch dogmatically stated, in his tuberculin researches, that he had cured his guinea-pigs, and up to the present time no explanation of these unconfirmed results had ever been forthcoming. Dr. Campbell had introduced the clinical aspect of the non-specific side of the discussion, and the speaker had seen many of these cases which had been spread over a long period, and from the point of view of an observer he had found them impressive. He also mentioned that Prof. Ralph Stockman, who was an exceedingly cautious and critical observer, considered the method the most satisfactory one in existence for the treatment of arthritis deformans. The discussion on immunity was a hardy annual in pathological circles, and he considered that the most promising fact of recent discovery in the field of immunity was that of the association of antigenic properties with non-protein substances.

Reply.

Dr. O'BRIEN, who replied briefly, said that he was strongly of the opinion that at the present time coöperation between the immunologist and the biochemist was of the greatest importance. Much of the clinical evidence adduced in support of one or other view of the therapeutic value of different methods of immunisation was utterly valueless, as the necessity for adequate control was not always realised upon the clinical side. He was impressed by Dr. Campbell's work and thought that a thorough investigation of other current methods of treatment upon critical lines, and over a sufficiently long period, would be of the greatest value.

FRIDAY, JULY 25TH.

At the third session the chair was taken by Prof. T. J. MACKIE.

Prof. M. J. STEWART read a paper on

Xanthoma and Xanthosis.

He said that these conditions were due to an excessive accumulation of lipoids which were deposited in the tissues, in the first place in large phagocytic cells, which had a characteristic "foamy" appearance. He exemplified such local deposits by xanthoma diabeticorum, which was a local manifestation of a condition of hypercholesteræmia. The localisation of the tumours was probably determined by trauma, after which the effused and deposited lipoids were taken up by phagocytic cells. The condition was a persistent one, as might be expected, and disappearance of the cholesteræmia did not result in disappearance of the

tumours. Another example was the "strawberry gall-bladder" which was first described by Sir Berkeley Moynihan, who pronounced it to be a dusting of the surface of the gall-bladder with gall-stone material. The small polypoid projections here seen were pendulous collections of foamy cells, gorged with cholesterin. The speaker thought that these might act as originators of the mulberry type of gall-stone, which was preponderatingly a cholesterin stone. Cholesteatomata of the choroid plexuses were not uncommonly found as incidents in a post-mortem examination. These little tumours presented the same structure as the allied formations found elsewhere, consisting of masses of foamy lipoid-containing cells. In the later stages of their existence the cells dissociate and free cholesterin was deposited.

Atheroma was a closely connected condition. Here a deposit of cholesterin was a constant feature of the early atheromatous plaques, and a like condition might be produced by feeding animals with cholesterin. All these conditions might be looked upon as examples of local deposits, determined by a general condition of hypercholesteræmia. In the morbid states now to be described the local deposits were not accompanied by any general metabolic change. "Myelin kidney" was an example of the latter type of disease. Here there was an extensive deposit of lipoid between the cortex and medulla of the kidney. In an early stage this substance was intracellular, and foamy cells were seen. The speaker regarded this condition as a special modification of subacute nephritis; in the early stages the lipoid could be seen in the renal epithelium and it was on disintegration of this that it was deposited in a free state. In panniculitis the same foamy cells were found as the result of a low-grade inflammation of the subcutaneous fat. The myeloid tumours of tendon sheaths often contained the same lipoid-filled cells, and it had been held by some that they were really xanthomata. The speaker pointed out that the true xanthomata of tendons were found in general xanthomatosis and were quite distinct from the myeloid tumour. His view was that the foamy cells occasionally seen in the latter represented a phase of degeneration in an endothelioma.

Dr. ARCHIBALD LEITCH read a paper on

Mule-Spinners' Cancer and Mineral Oils.

He pointed out that 20 per cent. of the cases of scrotal cancer occurring in this country were present in mule-spinners and that an additional 6 to 7 per cent. were in chimney-sweeps. No other occupation had an incidence of over 2 or 3 per cent. Certain mineral oils, shale-oil in particular, had the capacity for producing tumours in mice. Most lubricating oils contained a high percentage of petroleum oils which had also been found to produce the same result. The time taken to produce carcinoma by lubricating oil was greater than that taken by any other agent yet tried successfully for this purpose. The results varied with the different fractions employed, those distilling at a high temperature being more active than the more volatile fractions; this statement was also true of the more active shale oils, so it could be concluded that it was in these fractions that the active agent chiefly resided. With regard to the localisation to the scrotum, the speaker held that it might be due to the large sebaceous follicles there present, and thought that following a period of exertion and sweating material from the surface might be drawn into these follicles and act there. In chimney-sweep's cancer the active factor lay not in the carbon particles of the soot, but in a fraction which was soluble in sebaceous material, and with such a product carcinoma had actually been experimentally produced.

In the discussion which followed Dr. W. F. DEARDEN said that he had 30 years' experience of cotton mills. It was a curious thing that within the cotton trade itself knowledge of the disease was practically non-existent, largely because the spinners tended to conceal it, and hence the problem of prevention had scarcely yet been faced. There was no doubt that the men became saturated with oil from the cotton trousers worn when at work. The oil was not derived from the faller bar, as had been stated, for a boy was employed to keep this clean from oil, but was derived from the spindle bearings which sent off a fine spray of oil. The effect of the faller bar might be to press the oily trousers against the scrotum.

Dr. S. A. HENRY said that industrial epitheliomatous ulceration of the skin was a notifiable disease, but that epithelioma of the scrotum was not usually notified, probably on account of failure to recognise that the disease was an industrial one. The disease was one of very slow development; the earliest case he had found developed after 19 or 20 years' continuous employment in a mill. Change of occupation after a long period of spinning did not mean indemnity from the disease, as experimental work had shown in mouse tumours. He asked if Dr. Leitch could give any information as to the prevalence of this disease in America.

Reply.

In reply to a number of questions raised by different speakers, Dr. LEITCH said that cases of chimney-sweep's cancer were very few and he had not had an opportunity of demonstrating soot in relation to the sebaceous glands. Sebaceous material alone did not appear to have any carcinogenic qualities. With regard to scrotal cancer amongst cotton-spinners in the United States he had made careful inquiries, but had only succeeded in hearing of two cases. One possible explanation might be that the employees in that country did not spend as long a time at the same occupation as they did in this, where it was quite usual for cotton-spinners to pass their whole lives in the same trade. The location of cancer in the scrotum might be explicable upon the lines of its being a seat of election. In animals it was easy to produce epithelioma in one site, but more difficult in others.

Dr. J. E. MCCARTNEY read a paper on the

Criteria of Transmission and Cultivation of Encephalitis and Allied Viruses.

He pointed out the divergent results claimed by various workers with human encephalitis material. On the one hand, Strauss, Hirshfeld, and Loewe, in America, and Kling and Davide, in Sweden, obtained frequent positive results similar in type and not necessarily causing symptoms or death of their experimental animals, but nevertheless producing well-marked lesions in the animals' brains. Lævaditi and his associates, in France, claimed positive results of a different nature, after a different incubation period, accompanied by symptoms in the animal and finally by its death. It had been noted by Bull that in certain normal rabbits lesions were found in the brain akin to those described as specific for the encephalitis virus, and at the suggestion of Flexner the speaker examined nearly 400 rabbits from the Rockefeller Institute with the object of ascertaining if lesions were present in normal animals, and in animals the subjects of other infections, of the same nature as those obtained by the workers with human encephalitis and what might be their prevalence. He found in all the different categories of animals examined that such lesions might be detected. These were of several types: (1) The perivascular infiltration with round cells, familiar to all workers at encephalitis; (2) similar submeningeal infiltrations; (3) sub-ependymal collections of the same nature; and (4) focal aggregations and general infiltrations of round cells, sometimes associated with areas of necrosis. On an average such lesions were detected in about 50 per cent. of all the animals examined. Cultural experiments in such cases had proved uniformly negative both by ordinary methods and by the Noguchi method. In certain experiments with accredited viruses of encephalitis and herpes cultural experiment had also proved negative, and it had been shown that the survival of the virus in Noguchi medium, which had

been claimed as suitable for its cultivation, was of shorter duration than in ordinary broth.

Prof. BROWNING felicitated Dr. McCartney on having carried out a very laborious piece of work of an especially praiseworthy variety, since its results were negative. He had been watching work of a similar nature upon disseminated sclerosis and believed that the pitfalls which had been pointed out had been successfully avoided.

Dr. DIBLE said that what Dr. McCartney had done was to carry out the controls which other workers had failed to provide for. It did not, however, follow that his findings were universally applicable. The speaker had examined the brains of many rabbits, in Manchester, in the course of attempts to transmit human encephalitis and had not found these lesions. The explanation probably was simply that they were dependent upon an infection, which might be present in some areas and in some breeding houses but not in others. He thought that it was time to call in question much of the work that had been put forward with positive findings in this field. A large amount of published work had been built up and its foundations were very uncertain. For the last four or five years he had been trying to transmit human encephalitis to rabbits, using many varieties of material—fresh brain, glycerinated brain, and cerebro-spinal fluids—and essaying inoculations by all the routes for which positive results were claimed, and to his sorrow he had been completely unable to obtain any positive results. There was a tendency, he thought, to interpret such lesions as perivascular infiltrations in too narrow a sense. They were appearances due to anatomical and physiological conditions in the brain, which determined what the picture would be in response to infection; they might be occasioned by many infections—this was a commonplace—and they were certainly not to be looked upon as specific of any single infection.

Dr. J. CRUICKSHANK read a paper upon

A Study of B. Acidophilus *in Human Fæces.*

No one, he said, could fail to be struck by the number of Gram-positive bacilli seen in films of stools and by their absence in ordinary cultures. These organisms were acid-resisting, and it was easy to cultivate them by thickly implanting fæces into broth to which 1 per cent. of acetic acid was added. After incubation, plating resulted in an abundant growth of these bacilli along with certain cocci. *B. coli*, which seemed to exert a definite inhibitory effect on the growth of these organisms, was killed off. The acid-resisting organisms of this type constituted the aciduric group, to which *B. bifidus* was closely allied. Forty-four strains had been examined and an attempt made to group them by sugar reactions, but this was not satisfactory on account of the multitude of types which resulted. Agglutination had been no more successful, but types absolutely identical by sugar reactions appeared also identical with regard to agglutination. Many different types might occur in the same stool. There was much confusion over the whole group and he did not think that any of the members showed a real preference for anaerobic conditions.

Dr. R. P. SMITH read a paper on the

Isolation and Implantation of B. Acidophilus.

He had endeavoured to implant pure isolated strains of *B. acidophilus* in the intestine in typhoid carriers for therapeutic purposes. This was successful as long as feeding with the organism was maintained, but when this was stopped the bacilli quickly disappeared. Feeding with lactose prolonged the period of persistence of the organism. Attempts were also made to implant *B. lactis aerogenes;* these failed, except in a case in which the feeding was associated with vaccination with this organism. As a therapeutic measure such implantation relieved chronic constipation, but did not affect the presence of *B. typhosus* in carriers.

Dr. R. ROW read a paper on the Experimental Transmission of *Leishmania tropica* to Mice by Feeding. Only certain regions of the intestine showed any lesions as a result of this, these appearing mainly in the lymphoid follicles of the jejuno-duodenal junction. The transmission of the disease by biting insects was at present discredited, and from the experiments discussed he did not draw any positive inferences in favour of an intestinal origin for the condition.

SECTION OF DISEASES OF CHILDREN.

WEDNESDAY, JULY 23RD.

THIS section met on two days, Dr. LEONARD FINDLAY, the President, being in the chair. At the first session Dr. A. F. TREDGOLD (London) opened a discussion on

Prevention of Mental Deficiency.

He confined his remarks to mental deficiency as defined by the Mental Deficiency Act of 1913. He said that mental defectives could be divided broadly into two groups, primary and secondary. The essential cause of primary amentia was a diminished developmental potentiality of the cerebral neuroblasts, which was germinal in origin and was inherited or transmitted. Two chief views were held as to the nature of the germ change: (1) That the change in the germ plasma was "defect mutation," which was inherited as a Mendelian recessive; (2) that the change consisted in a form of germ devitalisation, the result of injurious factors of the environment (e.g., lead, mercury, tuberculosis) acting upon the germ cells or impairing the growth potentiality of the neuronic determinant. This impairment was manifested in varying degrees—defective function (hysteria, epilepsy, mental instability), defective durability (chronic forms of insanity, dementia præcox, pre-senile dementia), and defective structure (varying degrees of mental defect or subnormality). An additional embarrassment due to birth injury, antenatal or postnatal disease might bring about mental defect where the innate tendency to impairment of development was only slight. In his opinion, the latter view was the better one and was most in harmony with our present pathological, clinical, and genealogical knowledge. It should be noted that it was not the mental defect but the impairment of developmental potentiality or germ neuronic determinant—i.e., the neuropathic diathesis—which was inherited or transmitted.

In speaking of prevention, he said it was often assumed that to prevent mental defect it was only necessary to sterilise or segregate mental defectives. This was a mistake, for, whichever view was adopted, the Mendelian or the theory of germ impairment, segregation, or sterilisation would be attended with only limited preventive results. On the Mendelian view Punnett had shown that, assuming an initial proportion of one mentally defective per 100 population, these methods would have to be continued for 22 generations to reduce the proportion to 1 per 1000. If the view of germ devitalisation was adopted it was clear that the sterilisation or segregation of certifiable defectives could only be attended with limited results. These methods would only prevent those cases which are the offspring of mentally defective parents, and the proportion of these is relatively small. To produce any appreciable preventive result it would be necessary to sterilise all those who suffered from the neuropathic diathesis—an impracticable and impossible proceeding. As a policy segregation was better than sterilisation; mentally defectives were antisocial and therefore must be segregated for their own sakes, sterilisation being then unnecessary. If sterilisation were relied upon it would mean the setting free of many people who should be under control. Birth-control would certainly not prevent mental deficiency; on the contrary, there was every reason to think that it would increase the number of cases. What was needed at the present time was not the indiscriminate advocacy of birth-control, but the encouragement of the multiplication of the biologically sound and

fit, and the discouragement of the unsound and unfit.

Raising the question of the possibility of prevention of germ deterioration, he said that as long as it was assumed that this arose by mere chance or from unknown causes, nothing could be done, but if the assumption that it was due to faults of the environment be correct, then it came within the sphere of practical preventive medicine. Secondary amentia differed from primary amentia in that the germ plasm was normal and there was no morbid heredity; it was produced by adverse causes of environment acting directly upon developing embryo or young child; more antenatal research was essential. In cases due to vascular brain lesions the lesions were generally produced during birth and therefore called for improvement in methods of delivery. He asked whether operation would be possible in these cases. More research was also necessary in Mongolism and into the bacteriology and treatment of these cases resulting from toxic or inflammatory brain lesions. In cases due to syphilis treatment of the child was of no value; the parents of the child should be tested for evidence of the disease and treatment applied to them.

Dr. ERIC PRITCHARD (London) said that if the germ plasm could be injured by noxious influences—e.g., lead, mercury, &c.—and the influence continued through several generations, it was only logical to suppose that when these influences ceased to damage the germ plasm through many generations these inborn traits would breed out. The feeding experiments of Mendel, McCollum, and others showed that food could influence germ-plasm growth and reproduction, and it was therefore logical to assume that the nerve elements in the germ plasm would be affected to a greater degree. Food accessory factors, particularly vitamin-B starvation, might be one of the most potent causes of injury to the germ plasm in successive generations. With regard to Mongolism, he would draw attention to a recent paper in the *American Journal of Diseases of Children*, in which it was suggested that the condition was a primary one. The author investigated the case of Mongolism in 18 pairs of twins; in two cases only were both twins Mongols and these were homologous twins; all the other were heterologous twins. Under these circumstances, it was impossible for the condition to be a secondary one. Mongolism could not be due to germinal influences, for it is rarely seen in families and rarely in more than one child of the same mother. He wished to ask Dr. Tredgold, therefore, if he was convinced that Mongolism was secondary.

Dr. ROBERT HUTCHISON (London), speaking purely from his clinical experience of 150 private cases, said that the classification of mental deficiency into primary and secondary forms was a purely arbitrary one. Secondary forms simply meant those in which the cause was known, and primary those in which it was unknown. It was absurd, therefore, to classify Mongolism as a secondary form, because its cause was unknown. He classified his cases purely on clinical grounds, and of the 150 cases Mongols formed 35 per cent., epilepsy 6 per cent., cretins 6 per cent., and primary amentia 45 per cent. Attention therefore should be concentrated on the prevention of primary amentia and Mongolism. There was no evidence that primary amentia was hereditary and transmissible. Every one of his audience, he said, had a neuropathic inheritance, and indeed it was the only one worth having. With regard to the factors producing a damaged germ plasm, Dr. Tredgold dragged in endocrine disturbances and hypothetical toxins, while Dr. Pritchard emphasised the vitamins. These he regarded as the resources of the intellectually bankrupt; if they had nothing better to bring forward then there was no evidence of the action of toxin. Neither of the two preceding speakers had made any reference to the fact that these children were usually the first-born children; it would appear that nature made a botch of it at the first pregnancy, and after that appeared to be more successful. If these cases were to be prevented the only logical treatment appeared to be that of slaying all the first-born! Another point also not mentioned by these speakers was that the mothers of Mongols were almost always somewhat old—in 75 per cent. of his cases the mothers were over 35 years of age. Therefore, on that ground alone the only practical prevention of Mongolism would be to prevent all women over 35 having children. With regard to the other forms of mental defect, head injury cases might be prevented by early version, Cæsarean section, and appropriate measures, but they formed only 10 per cent. of mental deficiency. The very small part played by syphilis in mental deficiency had been well shown by John Thomson's statistics. He believed that mental deficiency was no more inherited than hare-lip or cleft-palate: it arose as a fortuitous variation. Every generation produced its crop of mentally deficient as it produced its great men; and in conclusion he quoted Sairey Gamp—"We were born in a wale and must take the consequences."

Dr. W. A. POTTS (Birmingham) said he could not agree with Dr. Hutchison that the inheritance of mental deficiency was disproved; how was it that if two mentally deficient people married all the offspring were mentally defective? He agreed that segregation alone would require a very long time to obtain good results, but if other factors, antenatal and natal, also received attention practical results would be obtained. As special causes in the production of mental deficiency he instanced the effect of toxic conditions—e.g., pyorrhœa during pregnancy—which were most dangerous in the first six weeks of pregnancy. Too rapidly repeated pregnancies also affected the children. An improvement in obstetric practice would lessen the number of cases of mental deficiency.

Dr. LANGDON-DOWN (London) was in substantial agreement with the arguments and conclusions of Dr. Tredgold. He agreed with him in rejecting compulsory sterilisation as a necessary or wise method for the prevention of mental deficiency. And to be effective at all, it would have to be compulsory. Segregation produced the same results as sterilisation, and fulfilled also the other conditions of the problem. To decide what class of case should be sterilised was a problem bristling with difficulties.

Dr. R. M. MARSHALL (Manchester) agreed that the neuropathic diathesis was not inherited as a Mendelian recessive, but he could not go all the way with Dr. Tredgold when he suggested that the diathesis arose from a devitalism of the germ plasm which produced certain nervous disorders and reached a culmination in amentia. This would imply that the neuropathic diathesis was a progressive condition, originating as a functional neurosis and ending as mental deficiency, and was simply a statement in modern pathological terms of the old doctrine of family degeneration. He thought that Dr. Tredgold's paper helped to establish certain points in the prevention of amentia, and that he placed the proper emphasis on sterilisation and segregation. Sterilisation was not calculated to get at the morbid process responsible for the condition, and segregation, if adopted early in life, prevented the reinforcement of certain types of society which were a burden to the ratepayer.

Dr. BERNARD MYERS (London) supported Dr. Hutchison's classification as a practical clinical one, and emphasised the importance of looking after the pregnant mother, and particularly the prevention of infectious diseases.

Dr. W. CROFTON (Dublin) said that everyone who had studied the influence of environment on the morphology of micro-organisms was convinced of the importance of environment, and he considered it was the first duty of the Government to provide minimum standards of wage, food, and housing.

Dr. A. E. NAISH (Sheffield) thought that Dr. Hutchison's view against heredity was due to the fact that he was dealing with private cases among which sporadic cases occur more than in any other class. With regard to Mendelism, he thought they should

adopt the theory of non-proven rather than deny it. If Dr. Tredgold's theory of pathological change in the germ plasm—showing itself in the least degree as hysteria, in a more severe degree as dementia præcox, and culminating in amentia—were true, one would expect a large number of cases showing a mild degree of mental defect to develop into dementia præcox as they grew older.

Dr. C. F. LAPAGE (Manchester) said that there was no distinct gap between mental deficiency and lower grades of those children who were not actually certifiable. He held it was not hereditary change but rather some alteration in germ cell or in embryo. The effect of stock was undoubted in many cases.

Dr. H. B. BRACKENBURY (London) thought that there was a tendency in the discussion to deny that there was any such thing as mental deficiency. He held there was an absolute distinction between mental deficiency and backwardness or dullness, if they could be diagnosed, although he regarded the diagnosis as difficult. If our knowledge were complete we could diagnose between the two conditions.

The PRESIDENT said that the subject was chosen for discussion because the lay press often wrote as if the presence of mental deficiency was an indictment of the medical profession, and as if the profession knew how to prevent it but did not. The discussion was arranged so that a definite opinion could be given to the public, but he was afraid that that object had not been achieved. It could not be doubted that heredity played a big part in mental supply just as it did in stature, eye colour, and other traits, but mental deficiency was different. There was no concrete opinion regarding the cause. He thought congenital and acquired were better terms than primary and secondary; the problem that presented itself was the prevention of the congenital defect, since the prevention of the secondary defect was only a question of better medicine. Mental deficiency was common in better classes, and in them he had not been able to find a family history pointing to heredity. He would not be astonished if the better classes had not a larger number of mental defectives than the poorer classes, and this took the causation right away from the problems of housing or feeding. It had been suggested that with better obstetrics there would be less mental deficiency, but it was a curious fact that the more training there was in obstetrics, the more accidents there were at birth. It tempted the doctor to do more than he otherwise would, and tended towards hurry. We were spending a large amount of money on treatment of mental deficiency, and he would ask Dr. Tredgold if it were worth while. What percentage of mental defectives could support themselves?

Reply.

Dr. TREDGOLD, in reply, said that he did not know whether Mongolism was primary or secondary, but he thought environment acting on the child did have an effect; the cause was, however, unknown. Dr. Hutchison swept aside all knowledge, heredity, science, and reduced the question to one of clinical experience and of chance; but the more we knew of mental deficiency the more we saw that, although as yet unknown, there was a cause for it. There was clear experimental evidence that adverse circumstances did affect the germ plasm and that as a result the embryo was affected. He was quite definite that there were thousands of families without a neuropathic inheritance, and that it was in the unsound families that mental defectives were found. Dr. Marshall was probably thinking of school-children found in mentally defective schools—i.e., morons. If so, he entirely agreed with him, because there was a clear difference between morons and mental defectives. The moron is the lowest grade of normal, the mentally defective is a definite pathological condition. He also agreed with the President in thinking that the social class of the parents made no difference to the occurrence of mental deficiency, and therefore it was not due to housing or food. In answer to the President's question whether it was worth while spending money on the treatment of mental deficiency, he would ask what was the alternative? It was to leave these mentally defectives at large to work their will on society now and on posterity in the future. Therefore, we must segregate them, and if we must do this why not do the best we can for them? There were thousands of cases earning enough to pay for their keep.

THURSDAY, JULY 24TH.

On the second day Dr. CLIVE RIVIERE (London) opened a discussion on

Pulmonary Tuberculosis in Childhood.

He said that the original title advertised for the discussion was pulmonary tuberculosis in childhood, but that in the official handbook this had been changed to pulmonary tuberculosis in children of the school age and that his own remarks would be on that point, and he would deal with the clinical aspect of the question. He hoped that other speakers would say which part of the subject they were speaking about. For the ages 5 to 15 years the Registrar-General's report showed that the number of deaths attributable to tuberculosis was only 3 per cent. of the deaths at all ages. This low mortality admitted of two possible explanations—that there was little infection at these ages, or that children of the school age had a high immunity. He gave statistics to prove that infection at these ages was quite common, and also post-mortem figures proving that structural lesions were discoverable during these early years. The conclusion was therefore an obvious one, that there must be a notable immunity during this period of life. Among such material, infective but resistant, there must surely be in addition to a few deaths, numerous cases of disease running a more benign course and ending in recovery. How did these cases show themselves clinically and where were they found? He did not think they were found in hospitals, but they were found in tuberculosis dispensaries and in the school medical service. The tuberculous child was a type that could be recognised. There was a history of frequent coughs and colds, attacks of unexplained fever, loss of weight, anorexia, and asthenia. How were these cases to be detected? The stethoscope was useless in the diagnosis of hilus tuberculosis; it was only useful in detecting those uncommon cases of apical phthisis in children and the late stages of hilus tuberculosis, both of which varieties of the disease possessed a bad prognosis. There were, however, certain characteristic areas of dullness, the most characteristic being the right paravertebral dullness. This was as characteristic of hilus tuberculosis as apical dullness was of apical phthisis. The diagnosis of hilus tuberculosis then depended on the right interpretation of the symptoms, the finding of right paravertebral dullness by percussion and on well-interpreted X ray photographs, but not on the stethoscope. Unfortunately, the radiograph of later childhood was marred by shadows of past experience, but in earlier childhood a well-interpreted X ray was very helpful. He believed that the infection of the lung was a backward lymphatic spread from the hilus.

For purposes of discussion he would suggest some of the problems which hung around this tuberculous or sub-tuberculous school-child. First, his very existence seemed to be ignored in some quarters, and he hoped this discussion would help to establish it. Next, given his existence, came the detection and diagnosis of his disease, and following that the peculiar characteristics of pulmonary tuberculosis in childhood, and the points wherein it differed both clinically and pathologically from apical phthisis of adult type. These he had tried to outline, and they presented an interesting problem. Further, there remained the question of prognosis in the individual case, none the less difficult because the majority recovered readily. In addition, there was the question of what was to be done with the sub-tuberculous child from the administrative point of view, both in

the interests of the child himself and of the community. Finally, there remained the very important and interesting question of what eventually became of him, particularly on his emergence into adult life. Did he recruit the ranks of phthisis in the adult, or was he, as some believed, peculiarly immune to further tuberculous disease? Or were there, perhaps, cases which were protected by their childhood disease, and others in which it had obtained so firm a foothold as again to become active in the guise of a hilus tuberculosis of adult life? These among many he would suggest as suitable problems for discussion within the limits of the subject-matter.

Radiological Aspect of Pulmonary Tuberculosis.

Dr. CAMPBELL SUTTIE (Glasgow) spoke on the radiological aspect of pulmonary tuberculosis and dealt particularly with children under 5 years of age. He said that in the experience of the radiological department this was a comparatively uncommon and invariably fatal disease. The majority of those infected died in hospital and the disease usually lasted but a few months. He gave a detailed description of the technique employed, and said the radiogram gave accurate pictures of small peripheral and larger central lesions which had reached the stage of consolidation or cavitation before the corresponding physical signs could be detected. Progression of the disease was evidenced by the increasing opacity of the abnormal shadows, their spread in extent, their edges becoming less distinct owing to surrounding consolidation, the signs of cavitation in their centres, and by the appearance of abnormal shadows in the other lung.

From the radiographic standpoint there were four types of tuberculous infection: (1) Miliary tuberculosis; (2) broncho-pneumonic tuberculosis (Types A, B, and C); (3) hilus tuberculosis; (4) chronic phthisis (adult type). In miliary tuberculosis the chest was normal in contour and the X ray findings were negative. The hilum shadows were not more prominent than those found in supposedly healthy children, and yet at post-mortem examination there might be miliary tuberculosis present throughout the lungs with enlarged mediastinal glands. He did not think that tuberculous glands showed radiographically unless they had passed the stage of congestion or enlargement and had become caseous or calcareous. In broncho-pneumonic tuberculosis (Type A) the hilus shadows were almost invariably increased, and the whole field of both lungs dotted with rounded, sharply-defined areas of opacity, almost all of the same size and equally distributed. The size of each of these shadows varied with each case, from about 1 mm. to 3 mm. in diameter. They did not seem to coalesce until the individual lesion exceeded 3 mm., thereafter over large areas of lung dense shadows were produced, followed immediately by appearances indicative of cavitation. Acute broncho-pneumonic phthisis (Type B) was rare. Radiologically it was indistinguishable from a broncho-pneumonia which was breaking down, except that both lungs were not usually infected. Large cavities might be formed and spread the infection to the other lung. In Type C there was occasionally and usually in the lower lobes a caseous area which might have been the focus of the miliary spread. Hilus tuberculosis was more uncommon, and began as an increase in the size and opacity of the hilus shadow. Occasionally both were involved, but one increased at a much more rapid rate. Eventually the opacity might reach the lateral chest wall, but before this occurred an irregular area in the centre showed increased translucency, and within a short time a large irregularly-shaped cavity was seen. In tuberculosis of the lung with broncho-pneumonic or hilus type in infancy a unilateral chest infection had not yet been seen. The evidence of chronic tuberculosis in childhood was seen first as an increase in size and opacity of the hilus shadow. This opacity finally extended to the apex of the affected side as an elongated branching shadow showing at intervals along its course circular opacities with fairly well-marked outlines. These shadow areas were not discrete, but communicated with each other, and at the apex or below it there was an area of consolidation with at a later stage cavity formation.

In diagnosis he emphasised the difficulty of the apparently normal variations in extent and density of hilus shadows and the shadows caused by the bronchi and their vessels. Also the difficulty in diagnosing other bacteriological shadows such as the increasing hilus branching shadows, which may persist for many years after measles, whooping-cough, and influenza. The lung picture might be due to other processes, such as unresolved pneumonia. He stated in conclusion that he believed the broncho-pneumonic Type A to be the most common form of pulmonary tuberculosis in children detectable radiologically, and that it produced the radiogram on which alone a diagnosis can be made with reasonable certainty.

Dr. LAPAGE said he believed that children of the school age showed a high immunity to pulmonary tuberculosis. Hilus tuberculosis at the school age, particularly the mild form, was difficult to diagnose, and in diagnosing it he would lay stress on the following points: (1) The importance of the toxic state—e.g., headache, pallor, debility, after the elimination of all other possible toxic causes. (2) The appearance of the child on examination, there was a loss of tone of the whole system, the child "looked shabby," the skin was dry and dirty, there was a growth of downy hair on the back, a loss of tone of ligaments, flat-foot, and exercise tolerance was poor. Prof. Lorrain Smith stated that there were pathological changes in the muscle. (3) A history of exposure to infection. He believed that the infection was via the bronchial mucous membrane, to the glands, and later retrograde infection of the lung. (4) On percussion, paravertebral dullness might be present in healed or active tuberculosis. On auscultation he thought D'Espine's sign was useful. (5) An X ray examination; the interpretation of this was, however, difficult. (6) The reaction to treatment—if a child improved greatly on rest, climate, and dietetic treatment, the diagnosis was confirmed. He made a plea for more schools for children for the lengthy treatment of mild cases of hilus tuberculosis.

Dr. C. W. VINING (Leeds) said it was important to distinguish between tuberculous infection and tuberculous disease. Impaired health was too commonly put down to tuberculosis. Localised tuberculosis did not affect the health very greatly; if ill-health were present it was due to toxæmia, which meant a severe and spreading lesion, and the majority of such cases died. He would like to know what percentage of school-children in cities showed the signs Dr. Riviere had described; he thought that post-mortem statistics from a general hospital were more likely to express the disease incidence in the community than statistics obtained from children's hospitals. He therefore had examined the post-mortem records at the Leeds Infirmary of cases from 5 to 14 years of age. Of 103 cases in which death was due to accident or burns, tuberculous lesions were present in 14 per cent., and only four cases showed intra-thoracic lesions. He did not understand how enlarged bronchial glands could produce paravertebral dullness. Dr. Riviere had said that this was due to alteration in the surrounding lung, but it was difficult to see how this was brought about, because the root of the lung was tucked away deeply in the chest and covered over by a mass of lung tissue.

Dr. CHARLES MACNEIL (Edinburgh) said that the type of child spoken of by Dr. Riviere was the common type of latent tuberculous disease in children of the school age. The diagnosis was important because these cases were amenable to treatment. In his opinion children of the school age were diagnosed as suffering from chronic tuberculosis in far too large numbers. Raising the question whether it was possible to diagnose mediastinal glandular tuberculosis, he said that if Dr. Riviere's claim for

right paravertebral dullness were sound it was an important contribution, but it was the last of a series of signs that had been offered, such as Eustace Smith's murmur, D'Espine's sign, parasternal dullness, all of which were now largely discredited. He was entirely unconvinced that paravertebral dullness was any better than these other signs. The objections he had to it were that it was not a true dullness, it was only impaired resonance, and that normally there was along the vertebral border an area of impaired resonance. There was no local sign that was generally available and the diagnosis was very difficult, indeed, it was often rather a probability than a certainty, but if a child gave a positive von Pirquet's reaction and did not show any evidence of pulmonary or other disease, but had signs of general ill-health, it could be presumed that the child was suffering from tuberculous bronchial glands.

Dr. F. G. CHANDLER (London) said that pulmonary tuberculosis did occur in infancy and childhood, and that mediastinal glandular tuberculosis was common. At post-mortem there was frequently evidence of old tuberculosis in the mediastinal glands and therefore there must have been disease earlier in life. The absence of mortality between the age of 2 and 14 did not imply non-infection. Was it possible that tuberculosis destroyed the most susceptible before the age of 2 and then dealt gradually with the rest? Marked symptoms of tuberculous disease were not infrequently found at 15 years, therefore the disease must have been present before that time. There were many slight warnings of this tuberculous state which had been well defined by Riviere as subtuberculous, but it must not be thought that every case of malnutrition in childhood was due to tuberculosis. He stressed the importance in diagnosis of a barking, dry, paroxsymal cough at night, failure to gain weight, toxæmia as described by Dr. Lapage, paravertebral dullness, diminution of Krönig's bands, and the importance of sputum examination. If it were not possible to obtain sputum the fæces should be examined. In the absence of uninfected food, the findings of tubercle bacilli in the fæces was diagnostic of pulmonary tuberculosis. The X rays, unfortunately, gave the least help in the diagnosis of those cases where help was most required. As to prevention there should be avoidance of infection, a pure milk-supply, early diagnosis, and more frequent routine examination than were undertaken to-day.

Dr. W. B. CROFTON (Dublin) said that 25 per cent. of all cows supplying milk to London were tuberculous, therefore practically all the milk in London could be regarded as tuberculous. He stressed the difficulty of diagnosis of pulmonary tuberculosis in cases where no tubercle bacilli were found in the sputum, and also the importance of the subcutaneous tuberculin test as a help in diagnosis. His experience with his own antigen was that he had never known a case which developed tuberculosis, if after three or four days the reaction was negative.

Dr. J. A. WATT (Derby), speaking of children of the school age, said that he agreed with Dr. Riviere that hilus type of infection was the common form of the disease, and also that right paravertebral dullness was present in these cases. He thought D'Espine's sign was of great value and also the examination of the sputum, but the latter must be done by concentration methods. 45 per cent. of hilus cases showed tubercle bacilli by these methods and the mortality after four years of this group of cases was small, whereas of 60 cases of the adult type of infection which developed from 10 years onwards, 80 per cent. had died in four years. As to the future of cases of the hilus type, he believed that it developed into adult tuberculosis in after life, and he thought public money would be better spent in treating these children than in treating adult tuberculosis.

Dr. ERIC PRITCHARD thought that the diagnosis of this form of tuberculosis required simple means and that the refinements of percussion as suggested by Dr. Riviere were too great. He had had great success with subcutaneous test and did not know why it was not more used. He found no danger in it, but it must be remembered there was a difference between the bovine and human type of infection. A focal reaction was of great diagnostic importance. If there was a general reaction only, then the child must receive specific prophylactic treatment. Malnutrition must not be regarded as an essential point in diagnosis, since tuberculosis occurred in quite well-nourished children. He had used tuberculin prophylactically with great success, and of 40 cases in infants exposed to infection, who gave a focal or general reaction and to whom he had given a six months' course of tuberculin, all were now alive. This disproved Hamburger's and Monti's statement that 90 per cent. of all infants infected with tuberculosis died.

The PRESIDENT said that the discussion had been comprehensive, but the subject chosen for discussion was not tuberculosis in children but pulmonary tuberculosis, and he wished speakers had stated more definitely the type of case they were discussing. What we wanted to know was how frequently we met with pulmonary tuberculosis. Physicians in children's hospitals saw every form of case and therefore the children's hospital could be taken as supplying evidence as to the frequency of the disease. In Glasgow tuberculosis of the lungs during school age was rare. When it was diagnosed death soon occurred. If cases of mediastinal gland tuberculosis were classed as pulmonary tuberculosis, then, of course, it was much commoner. Tuberculous mediastinal glands was one of the most difficult diseases to diagnose. Evidence of improvement when country life was substituted for town life was not evidence that tubercle was present. It was questionable whether with all precautions it was possible to get tubercle-free milk; sterilisation of milk was therefore essential.

Replies.

Dr. SUTTIE, in replying, said that his remarks were based on a large number of radiological examinations. About 1000 radiograms of chests were taken every year. He could not say that an X ray examination was any help in the diagnosis of enlarged mediastinal glands unless these were very large or calcareous. As a matter of fact, all forms of pulmonary tuberculosis except the broncho-pneumonic type A could be simulated by other diseases.

Dr. RIVIERE, in replying, said that, in answer to Dr. Lapage, symptoms could never be anything more than mere indications for examination, although it was necessary to rely on them for evidence of activity of the disease. He thought Dr. Vining's figures substantiated his own view that many cases ought to be found in practice. He agreed that there was no sufficient explanation of paravertebral dullness, but thought it was probably due to enlargement of the bifurcation glands pressing on the right pulmonary artery and resulting in under-expansion of the right lung. He had not often been able to find tubercle bacilli in the sputum, and in answer to Dr. Crofton's remarks about tuberculin, he thought that most people agreed that a mere general reaction was not of great value, although a focal reaction was important, but he had not used this method in children. He did not agree with Dr. Watt that hilus tuberculosis of children became the adult type of tubercle, but he suggested that it might give rise to those deep cases of tuberculosis seen in adults.

In answer to the President, he said he himself had found these cases did not go to children's hospitals, but were sorted out in schools and sent to dispensaries for tuberculosis or to chest hospitals, but possibly in Glasgow conditions were different.

THE annual meeting of the Medical Sickness, Annuity and Life Assurance Society will be held at Lincoln House, 300, High Holborn, London, W.C. 1, on Monday, Oct. 6th, at 4 P.M.

ARTICLE TEMOIN PHOTOGRAPHIE

Special Articles.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Pensions of Poor-law Medical Officers.

THE Local Government Bill, introduced to the Dail last session, proposed to repeal all existing enactments dealing with the superannuation rights of Poor-law medical officers, and to substitute conditions much less favourable. Representations made to the Minister have convinced him of the injustice of this proposal in so far as it affected existing officers, and he has decided to propose amendments to protect their interests. In reply to a query as to his intentions from the Secretary of the Irish Medical Association, an official letter from the Ministry states: "The Minister desires me to state that he has decided to introduce into this Bill amending clauses which will fully preserve all the present rights to superannuations or gratuities on retirement of officers holding office at the date of the Bill passing into law."

A manifest injustice to existing officers is to be avoided, but the profession will not be satisfied that worse conditions as regards pension should be applied to future officers than are in force at present. The public services of Ireland need to be rendered more attractive rather than less so if the medical system is to be efficient.

The Position of the Medical Profession in the Free State.

Dr. Hennessy, Medical Secretary of the Irish Medical Committee, addressing a largely attended joint meeting of the medical practitioners of the counties of Wicklow and Wexford which was held recently, discussed the legislative proposals of the Government and the adverse conditions likely to occur if the profession were not immediately organised on a thoroughly satisfactory basis. The following pledge, already adopted by the counties of Kildare and Meath, was approved by the meeting and was signed by all the members present.

"We, the undersigned medical practitioners, hereby bind ourselves by any action involving the resignation of our offices, or any other course which may be deemed necessary to be adopted by the Irish Medical Committee, as representing the Irish medical profession, towards securing satisfactory conditions of medical service in Ireland."

Medical Officers and Political Activity.

In several instances in the last year the Minister for Local Government refused to give his sanction to the appointment as dispensary medical officers of medical men supposed to have been associated with the military activities of the Republican party. It would appear that the Government no longer finds it necessary to take such action. In the case of Dr. Tubridy, of Connemara, whose appointment the Minister refused to sanction some months ago, sanction has now been given. In conveying this decision the Minister remarks: "The Minister is far from desirous of extracting humiliating undertakings from participants in the Irregular operations, although he does not minimise their disastrous consequences. Many of those who participated were misguided, and found themselves committed deliberately without adequate opportunity of considering their position. It appears that the Board of Health are assured from personal knowledge that in the case of Dr. Tubridy no guarantees are necessary from him as to future conformity. In all the circumstances, and in deference to the wishes of the Board of Health, the Minister will not further withhold his sanction to the appointment. In coming to this decision he has taken into account that Dr. Tubridy is a fluent Irish speaker, and that the district concerned is largely composed of native Irish speakers. He has also been favourably impressed by reports of his medical staff as to the devoted service rendered by Dr. Tubridy during former epidemics of fever."

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Wagner-Jauregg Treatment of General Paralysis of the Insane.

THE treatment of general paralysis by injecting the plasmodium of malaria, as devised by Prof. Wagner-Jauregg, of Vienna, has been tried in Germany also. In a report from the Clinic for Psychical Diseases which appeared in a recent issue of the *Zeitschrift für Psychiatrie*, Dr. Jossmann states that the method was tried in 100 cases of general paralysis. After an injection of 2 c.cm. of malarial blood, malaria developed in the patients under treatment in the form of quotidian fever, but was stopped after 12 attacks by the administration of quinine. As a rule, the patients passed through the fever without severe injury to their health; in several cases with cardiac weakness, however, the outcome was fatal. All stages of paralysis were treated by the method, and the result was that in 21 cases the patients were enabled to begin working again, although slight traces of paralysis were still present. In 28 cases the patients were able to resume work to a limited extent, the paralytic symptoms having undergone a considerable amelioration. In 39 cases no improvement worth mentioning was noticeable, and 12 cases died during or in consequence of the treatment. Even in the improved cases slight disturbances of speech and irregularity of the pupils remained. The intellect did not entirely return to normal, and a lack of insight into the state of illness remained. Dr. Jossmann comes to the conclusion that, although it is still too soon for a final judgment to be passed, it has nevertheless been ascertained that during the 18 months in which the Wagner-Jauregg method has been available, improvement has taken place in about 50 per cent. of the cases, especially in the early stages of the disease.

Prophylaxis in Goitre.

As in other mountain districts, goitre is endemic in Upper Bavaria, and similar prophylactic measures to those taken by the Swiss Government to combat this disease have been adopted. They consist principally in the use of iodine-salt for household purposes, which is sold everywhere instead of the ordinary kitchen salt. The salt, termed in Bavaria "Vollsalz," contains 0·5 g. iodine to each 100 kg. of salt, so that an adult person, taking on an average 20 g. of salt a day, receives about 0·07 g. of iodine, a quantity which is quite harmless. Dr. Eggenberger, surgeon to the cantonal hospital of Herisau, Appenzell, Switzerland, addressing the Munich Medical Society, gave a report on the results obtained by the use of iodine-salt. He stated that since the introduction of "Vollsalz" the annual number of operations for goitre in the hospital of Herisau had decreased from 40 to 11. Goitre in school-children had been reduced; infants whose mothers consumed "Vollsalz" did not show hyperplasia of the thyroid gland, a condition which formerly was present in about 50 per cent. of new-born children. He expressed the hope that by a permanent use of "Vollsalz" the incidence of goitre would be reduced to nil within ten years.

New Regulations for the State Examination in Medicine.

The existing regulations for the State examination in medicine have been modified, although its main scope has not been altered. For financial reasons it has not been possible to make the time of study longer than five years, in spite of the enormous pressure on the students' time involved by the lectures and clinical training in the different branches of the medical curriculum. The first two student years are devoted to chemistry, physics, botany, zoology, anatomy, and physiology, and after that time the preliminary examination in those branches is set. The following three years are given up to the theoretical and practical study of clinical medicine. The regulations provide

new compulsory additional lectures on hygiene, orthopædics, and forensic medicine. The State examination will include 14 sections—namely, pathology and post-mortem examination, topographical anatomy, pharmacy, internal medicine, surgery, obstetrics and women's diseases, ophthalmology, diseases of the ears, the pharynx, and the nose, children's diseases, diseases of the skin, venereal diseases, psychiatry, hygiene, and forensic medicine. If a candidate fails in passing the examination at the first attempt, he may re-enter for it only once. The practical year subsequent to the State examination has been retained under the regulations; during the practical year the candidate must prove that he is able to give a professional opinion in forensic cases.

The Anti-Opium Law.

The German Parliament has recently passed a Bill dealing with the import, the export, and the sale of opium in accordance with the international conventions on that subject. According to the provisions of the Bill, raw and refined opium (morphine, heroin, &c.) may only be imported by chemical works and wholesale dealers who do not sell their products to the individual consumer; this special licence may be granted only to persons of good conduct and to recognised scientific institutions. From a medical point of view the principal feature of the law is that medical prescriptions containing opium may not be given back to patients, but are to be retained in the pharmacy; they must be produced on request of the district medical officer of health. In this way it will become difficult, if not impossible, for people who indulge in the morphia habit to procure morphine in several pharmacies by one single written prescription. The export of opium to foreign countries is permitted only when the Government in question has given its agreement, and this agreement is produced to the competent German authority. The import and export of opium for smoking purposes is strictly prohibited in accordance with the international conventions: offenders against this and the other provisions of the law may be punished with imprisonment not exceeding three years, and a fine.

The Society for Sports.

At the inaugural meeting of the newly founded Society for Sports (vide THE LANCET, July 5th, 1924, p. 40) which I mentioned in a recent letter, Prof. Schmidt, of Bonn, was elected chairman. The first address was read by Prof. Bier, who gave a historical review of sports, in which he referred to the high esteem in which the ancient Greeks and Romans held sports as factors in producing a healthy and strong youth. Sports in which the skin is freely exposed are a good prophylactic against diseases due to chill, against tuberculosis and rickets. In all forms of sport records are of less importance than good average results. Prof. Klapp spoke in favour of a daily hour of gymnastics in the schools, as is the rule in Sweden. Dr. Bruns, of Königsberg, read a paper on the influence of sports on the size of the heart. Prof. Strassmann spoke on the effect of sports on women, and said that in physically trained women delivery was as a rule more easy than in others. At the climacteric participation in sports counteracted obesity. The society elected a committee to examine the question of over-exertion.

Control of Tuberculous Patients.

According to the statistical tables published by the Statistical Office of the city of Berlin, 36,335 new cases of tuberculosis were examined last year in the municipal sanitary offices (Fürsorgestellen), together with 139,015 older cases. 142,503 visits in the homes of the patients have been made. Previous to the recent anti-tuberculosis law, 73 per cent. of the tuberculous patients were under the control of the offices, and it is hoped that under the new law the efficacy of the Fürsorgestellen will increase. They have worked and will continue to work together with the workmen's insurance institutions, being for the greater part connected with the municipal hospitals.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Politics and University Appointments.

IN this country the University and everything pertaining to it is maintained by the State, and the selection of teachers and the promotion to the title of privat-docent or professor is supposed to depend on scientific considerations only. Consequently, there was some consternation among the public when it became known that for the last three years a number of younger applicants for the posts of privat-docent or extraordinary professor had been rejected without explanation by the University Board. According to the law, the rejected applicant is entitled to learn the reason why he was deemed unfit for the post. This clear postulate of the rules and the law had not been complied with. In three instances, however, the unsuccessful candidates (one an assistant of the Institute for Physical Research, one a linguist, one an eminent student of hygiene) had received proof that they had been rejected simply because they had been suspected of being communists or social democrats. The Social Democratic (Labour) Party in our Parliament has taken the matter up and has lodged a complaint with the Government, demanding "that the rejected applications be reconsidered and that the meeting of the board of professors be controlled by a Government representative, as there can be no violation of the existing laws, which stipulate that no other considerations than the scientific qualifications of the applicant be decisive." At the same time all applicants, mostly medical men, who within the last three years had been unsuccessful are invited to report to the University committee of the Social Democratic Party so as to find out how the rather narrow-minded majority of the old professors had been administering the laws. It is well known that there is a secret tendency to keep out not only modern, free-minded young people, but also Jewish applicants or those of Jewish descent, no matter how well qualified they may be.

Public Baths and their Present Vogue.

A marked step forward in regard to public hygiene has been made in Vienna within the last five years by the opening of numerous bathing establishments for public use, some of them free of charge. The present municipal board of health is backed by the ruling political party in its endeavours to make Vienna the cleanliest, healthiest, and most hygienic of all capital cities in Europe. Thus Vienna owns 39 municipal bathing establishments, 18 douche baths each accommodating 280 visitors at a time, 3 swimming and warm baths, including Turkish baths, 13 river baths for swimming only, 5 children's baths (free of charge), besides 3 large open-air and sun baths. Whilst in 1888, when the first public douche baths were opened, only 80,000 visitors used them yearly, in 1923 no less than 4,840,000 visits were paid to the public municipal baths, including the air-and-sun baths. An illustrative fact may be mentioned. On July 15th, 1923, the total of paying visitors in these baths was 70,000—that is, almost as many on one day as were totalled all the year round 35 years ago. In the five children's baths over half a million children were counted last summer; five river baths, partly in the Danube in the centre of the city, partly in backwaters of the river on the outskirts of the town, have been opened lately. There the system of beach bathing is favoured—i.e., extensive sands and shallow water which is kept pure by the running stream—the bathers being able to enjoy at the same time the benefits of water, sunshine, and air. Three air-and-sun baths are situated on the slopes of the hills surrounding the city, thus adding to the air and sun therapy the beneficial effect of a fine view. Compulsory teaching of swimming for children will be introduced in the elementary schools within the next two years. All teachers of public schools are now expected to take

courses in swimming, which are provided free of cost. At present the municipality is building a huge bathing establishment in the working men's district, which it is said will be the biggest and finest of its kind in Europe, so as to save the labourers the trouble and time of going to the baths situated rather far away from their district. Apart from these municipal establishments, we have, of course, a number of private institutions, which also offer excellent opportunities for swimming or bathing. But these are rather on a smaller scale, and their capacity is only a fraction of that offered by the municipal baths.

Blood Transfusion.

At a recent meeting of the Vienna Medical Society Dr. Redlich discussed the results obtained by the transfusion of healthy blood in five severe cases of pernicious anæmia. In all cases the condition of the patient was markedly improved by the procedure, as manifested by rapid increase of erythrocytes, a more satisfactory colour-index, and general improvement of the muscular tone. In a case of severe bilateral hæmorrhage from the kidneys, which had lasted for weeks and had been refractory to all other treatment, the transfusion soon put an end to the bleeding. The patients received, as a rule, between 300 and 500 c.cm. blood, and Dr. Redlich considers the repeated transfusion of large quantities at short intervals to be the most preferable method (8–10 days between each); smaller quantities and longer intervals are much less efficacious. The Öhlecker apparatus was used, and in all cases a compatibility test was made (method of Moss). Dr. Redlich stated that a slight rise of temperature was sometimes met with, but seemed to do no harm. In severe hæmorrhages the result was often excellent; but it was not known whether the results were permanent. A similar discussion took place some time ago in the Gynæcological Society of this city. Here, too, all were unanimous as to the good results obtainable by careful transfusion made after a preliminary blood test. In some cases a defibrinated or citrated blood did just as well as the direct transfusion. Prof. Eppinger pointed out that the increase of hæmolysis noted after the procedure showed that the newly ingested erythrocytes only lived for three or four days. He had also obtained very good results from intramuscular injection of blood. Cases of secondary anæmia were often much improved by transfusion and were thus made fit for a subsequent operation; and transfusion also gave good results in patients suffering from poisoning by domestic gas. But it must not be forgotten that, in urgent cases, the method is fraught with danger on account of possible anaphylactic shock. At present we have in Vienna a list of persons, belonging to four biological groups, who have consented to act as donors of blood for hospital cases. This system seems to work well.

The Anti-rat Campaign.

In the year 1921 the Board of Health of Austria organised an inquiry into the prevalence of rats in this country, especially in Vienna. It has been shown that apart from damage done to property by these mammals, no extensive epidemic could be traced here to them. Nevertheless, the possibility of an outbreak of plague is not out of question, since in Paris, as well as in Hamburg, a local "plague focus" is known to exist, due to the prevalence of rats, to say nothing of India. But as rats are on the increase here a campaign against them has been organised, and an Act has been brought in the National Assembly to deal with the economic and administrative measures required in the course of a rat campaign. Thus the expenses for the extermination of rats in infested private houses must be borne by the tenants, whilst in the public buildings (Customs House, granaries, General Post Office, and other Vienna buildings) the costs form an additional expense in the budget. It may be mentioned in this connexion that Austria has now been declared "clean" by the Immigration Board of the United States of America, so that emigrants from here are treated on the same footing as those coming from the countries with a clean hygienic bill (Great Britain, Germany, France, and Sweden). The Act gives full powers to the sanitary authorities to deal with all vermin whatever the cost.

UNQUALIFIED PRACTICE IN SWITZERLAND.

(FROM AN OCCASIONAL CORRESPONDENT.)

SWITZERLAND has the reputation of being an enlightened country, but dark corners remain, as was shown on August 17th, when the electorate of the Canton of Basle-Land with 5791 votes against 3531 gave its assent to a Bill brought forward by a certain number of citizens throwing open medical practice to "homœopaths and herbalists." The Swiss Constitution leaves the supervision of medical practice to the cantonal authorities. The Federal Government sets up the standard, and provides arrangements for the examinations, for a State medical diploma, but recognition of the diploma rests with cantonal authorities. Of the 25 Swiss cantons up till recently 24 grant the licence to practise medicine exclusively to holders of the Federal diploma. In the canton of Appenzell-Ausser-Rhoden medical practice was always free. "The practice of the medical and veterinary profession is free, and no person enjoying civic rights can be prohibited from exercising these professions." "Higher operative surgery, midwifery, medico-legal functions" are reserved for qualified practitioners by means of by-laws, but the canton of Appenzell has become a perfect Eldorado of quacks, having 26 qualified doctors and 35 unqualified practitioners. The latter do not confine their activities to their own canton, but carry on an extensive postal and consulting practice throughout the country. Every oriental and occidental medical system, as was recently shown in an address by Dr. Hunziker, health officer of Basle City, is represented amongst them. Arabian medicinemen, magnetotherapists, electrotherapists, spagirists, herbalists, "eye diagnosticians," psychophytotherapists, and phrenologists advertise their trade. One of them describes himself as court physician to the Sultan of Perak, another as professor of the University of Lima. Some diagnose all ailments exclusively by the examination of the urine. It has been learnt from a trustworthy source that one of them used to test a hundred samples of urine in half an hour, and to write as many prescriptions in the same time. Others never see their patients; they only require a sample of urine, after which they send their diagnosis and medicament by return of post and charge a heavy fee. Dr. Hunziker inquired into the original occupations of these unqualified practitioners, and found among them farmers, innkeepers, clerks, clergymen, cobblers, architects, hairdressers, coachmen, policemen, journalists, tramcar conductors, butchers, musicians, and midwives.

Mr. Howard Eugster, director of the Appenzell Health Department, has publicly regretted the state of affairs in his canton. But Appenzell has an advanced democratic constitution, and to alter the present regulations concerning medical practice a referendum would be necessary, and at present the chances of a favourable issue of such a vote are very small, as "freedom" of medical practice is widely regarded as a democratic achievement; and the unqualified practitioners are firmly entrenched in popular esteem. Moreover, they have begun to organise themselves and to carry on propaganda. That propaganda was not restricted to their own canton. Last year an effort was made to throw open the canton of Glaris, but there the proposition was vetoed by way of the plebiscite. This year it was the turn of the canton of Basle-Land, the population of which was always inclined to this sort of medical treatment. It must be noted that the cantons of Appenzell, Glaris, and Basle-Land alike have no towns and the population is purely rural. The

proposition agreed in the popular vote is to throw open the practice of non-toxic herbalist and homœopathic methods (Ausübung der giftfreien Kräuter- und homœopathischen Heilmethode), with the exclusion of surgery and midwifery. The requirements for such practitioners are that they must enjoy full civic rights and a residence in the canton for two years previous to their practice. After the adoption of this proposition the by-laws of public health must be altered accordingly, and then the people must again decide over the amended by-laws. In this way the plebiscite is not final, and the hope of a more enlightened vote can still be entertained. Practice for members of insurance societies will be restricted in any case to qualified medical men as before.

The Basle plebiscite of August 17th has been widely discussed. It is best explained as a natural, however ill-directed, reaction against State interference with individual freedom. The determined resistance against compulsory vaccination is explained by the same tendency. In addition, there is undoubtedly a certain popular mistrust of medical science and of the medical profession. In the canton of Zurich exists a strong movement for abolition of vivisection. The electorate will soon be called to give its verdict on this question.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

The Framingham Demonstration.

AFTER seven years of intensive work the organisers of the Framingham Demonstration have withdrawn. Nearly all of their work for the public health will be taken over by private or official agencies in the locality. The local board of health has in these years increased its expenditure from $8000 to $20,000 per annum, and, we may be sure, is not dissatisfied with the investment. The death-rate for the last two years is 9 per cent. below that for the decennial period preceding the demonstration. This is largely accounted for by a drop of 40 per cent. in infant mortality and 68 per cent. in tuberculosis. Seven "control" towns, whose mortality was comparable to and corrected on the same basis as that of Framingham, showed in the same period a reduction of only 32 per cent. in the tuberculosis mortality. Some account of how these fine results were accomplished has already appeared in your columns,[1] and a great deal of additional material, including valuable statistics, will be found in the final summary report which has just been issued and which may be obtained through the National Tuberculosis Association.[2] The care with which the different phases of the experiment have been classified and the addition of a good index will make this report a particularly valuable handbook to speakers on public health.

Scarlet Fever Prevention.

The health authorities are losing no time in turning to practical account the newer knowledge of the ætiology and immunology of scarlet fever. The New York City Department of Health announces in its weekly bulletin that it is prepared to immunise with Dochez's serum all children who have been exposed to infection with scarlet fever. Throat cultures for scarlet fever streptococci are being taken and the Dick skin test made. The Ohio Department of Health is considering the advisability of combining a Dick test campaign with its present State-wide campaign of Schick testing. It is less than two months since the Drs. Dick pointed out at the annual convention of the American Medical Association that "since scarlet fever toxin can be properly standardised only by means of skin tests on a large number of human beings, it is almost certain that improperly standardised toxin will appear on the market." While I am not aware of the method by which this difficulty has been overcome, it is evident that some means must have been discovered.

[1] THE LANCET, June 14th, 1924, p. 1243.
[2] 370, Seventh Avenue, New York City.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics of four counties for 1923:—

Name of county.	Estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Surrey	740,800	16·0	9·7	0·7	1·4	1·4	26	45	2·7
Wiltshire ..	290,880	18·3	11·0	0·8	1·5	1·4	32	51	2·4
Warwickshire	351,800	19·7	10·3	0·8	1·1	1·6	33	60	2·9
Northampton-shire	214,331	17·1	11·5	0·9	1·4	1·6	34	61	5·7

Surrey.

Dr. Joseph Cates describes the consideration given by the county council to the scheme for making more adequate provision for the institutional treatment of tuberculosis. The difficulties arising from the present arrangements are that most of the beds available are outside the county, and cause a natural reluctance in patients and their friends to accept treatment at a distant locality. The public health committee now recommend the carrying out of their original scheme for the erection of a sanatorium at Milford on the site purchased before the war. The proposed sanatorium will have accommodation for 200 patients and the expenditure is not to exceed £80,000. For the treatment of venereal diseases the county council provide clinics at the County Hospital, Guildford, and the Royal Hospital, Richmond, and also share in the joint agreement for using the London hospitals. Referring to midwifery practice by handy-women, Dr. Cates says this illegal practice would have ceased long ago but for the fact that certain medical practitioners knowingly render handy-women assistance by notifying births, signing certificates, and generally by shouldering the responsibility for the disasters which occur from time to time. As regards housing, Dr. Cates says there is no evidence that the overcrowding which existed in Surrey in the year 1922 has appreciably diminished. Reference is made to the large number of foods to which preservatives are now added, and the county analyst draws attention to the increasing practice of adding "improvers" to flour. The principal effect of the use of an "improver" is to enable more loaves to be made from a sack of flour, or in other words, to enable the baker to bake a flour containing a higher proportion of water. Only one producer has been licensed by the county council for "Grade A" milk, though it is clear that the standard required is attainable by any farmer who produces his milk under proper hygienic conditions. Dr. Cates thinks it is a question if the time has not come to consider whether the sale of milk falling below the standard of "Grade A" should any longer be permitted.

An appendix gives an interesting report of the condition of the River Wandle from its source near Croydon to its outfall into the Thames at Wandsworth. The upper part of the river receives a good deal of surface water polluted with oil and tar, and it is stated that since the pollution with oil and tar the watercress beds adjoining the river do not flourish. Originally the Wandle was noted for its trout, but experiments by riparian owners in recent years to stock parts of the river with fish have failed, presumably owing to the tar, oil, and chemicals discharged into the river. The banks of the river are not well

kept in all cases and the flow of the stream is sometimes much impaired. In the neighbourhood of Wimbledon the river is grossly polluted with sewage, chiefly from the works of the Wandle Valley Joint Sewage Board. Dr. Cates recommends that steps be taken for the establishment of a Wandle River Board and that a meeting of all the local sanitary authorities of the districts through which the river flows be called to discuss this proposal. Pending the establishment of such a board he recommends the county council to take proceedings to prevent gross contamination of the Wandle.

In the school report Dr. Cates describes the negotiations which have taken place with the Board of Education to make the dental scheme as complete as possible. The present school dental staff consists of four whole-time and one part-time dental surgeon, who are capable of dealing with 17,000 inspections and 4000 treatments per annum. Each age-group consists of about 7000 children, and one dentist is equal to dealing with half an age-group. It is obvious that many more dentists will be required to deal with the 62,000 children on the register. Dr. Cates discusses a complete scheme for mentally abnormal schoolchildren. The essential unit, he says, is the residential colony, which would receive idiots, imbeciles, low-grade feeble-minded children, and also high-grade feeble-minded children who do not make substantial progress at the day special school. The larger public elementary schools should each have classes for dull and backward children. Those who made no progress in such classes would be transferred to a special day-school. One colony might serve the whole county and three special day-schools in areas such as Mitcham, Barnes, and Woking might be sufficient.

Wiltshire.

Dr. Claude E. Tangye shows that certified midwives attended about 63 per cent. of the confinements in the county and sent for medical aid in about 20 per cent. of their cases. He mentions the curious fact that there are usually fewer cases of puerperal fever in the practice of the bona-fide midwives than in the practice of the trained midwives. Thus in 1923 there were no cases of puerperal fever in connexion with the 824 confinements attended by bona-fide midwives, while there were six cases among the 2600 confinements attended by trained midwives and three cases among the 1999 confinements attended by doctors. The county council make payments to some 70 district nursing associations and to six certified midwives. The subsidised midwives provide for areas otherwise unserved, and the rest of such areas have their needs met by the county council paying the travelling expenses of neighbouring midwives or by the admission of cases to the subsidised maternity homes. The maternity beds subsidised by the county council are at the Malmesbury Cottage Hospital, Salisbury General Infirmary, and the homes at Corsham and Swindon. Dr. Tangye shows that a reconsideration of the hospital areas and the isolation hospital accommodation in the county is necessary both for the sake of economy and efficiency. As the result of a public inquiry the county council was, in November, constituted the authority for dealing with small-pox within the county. The Salisbury Small-pox Hospital is to be acquired by the county council to serve the south of the county and a new hospital is to be built at Ogbourne to serve the north. Dr. Tangye mentions that, as in previous years, very little has been done in some districts in the inspection of houses or in obtaining repairs of dilapidated property. Only 481 new houses in all were erected during the year as against 899 in 1922.

Warwickshire.

Dr. A. Hamilton Wood records the praiseworthy efforts of the county council to prevent river pollution. A survey of the Tame made in July, 1923, showed that the oxygen content of the river was so low that fish life was impossible throughout its entire course. The Tame is a seriously polluted river before it reaches the county boundary, and notwithstanding the beneficial effect of the junction with the Anker, it leaves Warwickshire to re-enter the county of Stafford still polluted. The effluent from the Birmingham, Tame and Rea drainage works was of fair quality during the year, but its chlorinous odour was objectionable to those living on the banks of the river. There were indications of a slight improvement in the water. A survey of the Anker showed serious pollution from the brook which receives the effluent from the Hinckley sewage works. Improvements are being introduced at the Nuneaton sewage works, and other works whose effluents discharge into the Anker. Efforts are also being made to deal with the trade waste from the Sketchley dye works. The Avon enters the county near Rugby as a comparatively small stream and is soon polluted by the Rugby sewage works, which are now being improved. At Coventry the river with a normal flow of less than 10,000,000 gallons receives 5,000,000 gallons of unsatisfactory effluent from the sewage works, and Dr. Wood hopes the Coventry authorities will realise their responsibilities in the matter. An improvement is expected when the bio-aeration plant in course of construction is in operation, probably during the autumn of the present year. The Warwick sewage farm also turns an unsatisfactory effluent into the Avon, and it is imperative, says Dr. Wood, that the borough council should immediately take steps to bring about an improvement.

The widespread epidemics of paratyphoid fever which occurred during the summer centred around Leamington Spa. The source of infection was supposed to be a carrier, whose removal from the district coincided with the cessation of the epidemic. Mention is made of a letter from the Ministry in December suggesting coöperation between after-care committees, the Ministry of Pensions, the King's Roll Committee, and the Ministry of Labour in the endeavour to find suitable employment for ex-sanatorium patients. It is recommended that when possible six weeks' notice should be given of the pending discharge of a patient and that the tuberculosis officer should notify the local employment exchange when a change of occupation is necessary and at the same time forward a list of occupations which are considered unsuitable for the patient. Antenatal clinics have been established by the county council at Warwick and Rugby in connexion with their maternity homes and there are also small clinics at Stoke Heath and Solihull. The attendance of new cases during the year numbered 121, so that this work is only beginning. Dr. Wood points out that the health visitors were reduced in number from 18 to 16 in 1921 and that their work is suffering in consequence.

Northamptonshire.

Dr. Charles E. Paget reports that with the object of a better coördination of health services a special committee of the British Medical Association has been appointed to act as a liaison committee between the county council and the practitioners of the county. The arrangement by which the district nurses of the Northamptonshire District Nursing Association undertake the health visiting in the Brackley area is to be continued for a further period, but such services are to be subject to the supervision of the officers of the county council dating from June 1st, 1923. The county council coöperated with the Insurance Committee in the effective keeping of Health Week, and special celebrations were carried out in the selected centres of Irthlingborough, Oundle, Rothwell, and Rushden. Dr. Paget points out that the increase in cancer among females synchronised with the grave anxieties experienced under home conditions during the war and in the years following, and that there was no marked general increase in the male mortality from cancer until after the conclusion of the war. There was a small outbreak of five cases of enteric fever in one house in the Brackley rural district, traceable to a sewage polluted well which was believed

to have been infected by an unsuspected carrier staying in the house. There was no need for anyone to use the well for drinking purposes as a public supply of pure water was available for the occupants of the house.

An arrangement is in force with the County Nursing Association for the services of a nurse when a district is attacked by measles. Accommodation for the emergency nurse is to be provided through the district medical officer of health. Although measles was more prevalent than in the previous year, Dr. Paget regrets that no district took advantage of this arrangement. No progress has been made during the year in providing for the isolation of ordinary infectious diseases. A conference was held in November to which delegates from all the local sanitary authorities were invited for the purpose of considering the best means of providing small-pox accommodation for every district in the county. The attitude of the county council towards this question will depend upon the outcome of the discussions which ensued. Dr. Paget thinks the shortage of houses is likely to continue while the present prices for building materials are maintained and dilution within the industry in respect of skilled operatives does not take place. Several districts in the county have schemes in operation for the inspection of milch-herds by veterinary surgeons. In the Kettering, Desborough, and Rothwell districts four cows with tuberculous udders were found among 3730. In the Wellingborough district 38 out of 3316 cows were found to have abnormal udders, and in 19 of the 38 the cows were tuberculous. In the Kettering Urban District a scheme is in satisfactory operation by which the butchers give notice of their intention to slaughter in order to facilitate inspection, the individual butchers being protected against loss by an insurance scheme.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 23RD, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 14; scarlet fever, 1275; diphtheria, 623; enteric fever, 81; pneumonia, 390; puerperal fever, 46; cerebro-spinal fever, 5; acute poliomyelitis, 35; acute polio-encephalitis, 1; encephalitis lethargica, 61; continued fever, 1; dysentery, 3; ophthalmia neonatorum, 112. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 2 deaths from enteric fever, 1 from small-pox; 7 from scarlet fever; 29 from diphtheria; 11 from measles; 17 from influenza. In London itself the diphtheria deaths numbered 10. The fatal case of small-pox was reported from Barnsley. Previous fatal cases of small-pox during the quarter were reported, 3 in the week ended July 5th, 1 in the week ended June 28th. The actual number of cases of small-pox reported during the 13 weeks up to and including August 23rd was 336.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the committee 35 cases were considered and £507 10*s.* voted to 34 applicants. The following is a summary of some of the new cases relieved:—

Widow, aged 52, of M.R.C.S. who practised at Westbury and died this year. Late husband's practice has been sold and the payment to be spread over three years. When everything is settled applicant hopes to get an income about £90 per annum. The three children get an income of £13 16*s.* 8*d.* each. Applicant is unable to earn her own living owing to the care of an imbecile daughter aged 26. Voted £20.

Daughter, aged 60, of M.R.C.S. Eng. who practised at Andover and died in 1869. Has had no regular work since 1923 and is now considered too old for the posts she applies for. From 1915 to 1923 was nurse at a rescue maternity home, but on the resignation of the superintendent lost her post owing to the new superintendent bringing her own nurse. Is at present living with a married sister whose husband is a retired clergyman of over 80 years of age with two small pensions and unable to help his sister-in-law. Applicant has been doing knitting, for which she expects to receive 15*s.* She has one month's temporary work in view at 15*s.* a week. Voted £26 in 12 instalments.

Widow, aged 72, of M.D. Irel. who practised at Everton and died in 1894. Applicant left her husband in 1881 through his intemperance and supported herself and son. A few years ago obtained an annuity of £40 from Liverpool Merchants' Guild, which is her only income apart from the money received by knitting, which came to 29*s.* She lives with two unmarried sisters who are not well off. Voted £26 in 12 instalments.

Daughter, aged 37, of L.R.C.P. Edin. who practised in Liverpool and died in 1911. Suffers from epilepsy and is looked after by a sister whose only income is £17 10*s.* a year, the same as the applicant's. Applicant is only able to do temporary light clerical work at times, and the last 12 months only earned £8 10*s.*, and Lady Barr sent £5. Voted £15.

Daughter, aged 82, of M.R.C.S. Eng. who practised in North London and died in 1892. Applicant opened a home of rest for young women and carried it on until 1922 when her health broke down, which compelled her to give up everything. She now lives in one room in her sister's house. Applicant is living on her savings and all she has to depend on is the old age pension, 8*s.* a week, and interest on £100 War Bonds. Voted £10.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdrs.: G. E. Hamilton to *Fisgard*; A. R. Davidson to *Resolution*; and J. C. Bringan to *Victory*, for R.N. Barracks, Portsmouth; K. H. Hole to *Frobisher*, and as Squadron Medical Officer, on commg.; and J. O'Flynn to *President*, addl., for three months' hospl. course (on relief).

Surg. Lt.-Comdrs.: T. Gwynne-Jones to *Victory*, for R.N. Barracks; D. P. H. Pearson to *Queen Elizabeth*; A. G. Taylor to R.N. Sick Quarters, Shotley; F. G. Hunt to *Mackay*; L. W. Gemmell to R.N. Hospl., Chatham; R. K. Shaw to *Endeavour*; F. St. B. Wickham to *Assistance*; G. Aubrey to R.N. Hospl., Chatham; A. C. V. Green to *Burslem*; N. B. de M. Greenstreet to *Hermes*; and E. Heffernan to R.N. Hospl., Plymouth.

Surg. Lts.: R. R. Baker to *Iron Duke*; M. Barton to *Adamant*; and J. J. A. O'Sullivan to *Royal Oak*; C. H. Savory to *Victory*, for Portsmouth Dockyard, temp., and to *Frobisher* on commg.; D. Glass to *Wallace*; and J. J. O'Reilly to *Resolution*.

R. Burns to be Surg. Lt.

ROYAL NAVAL VOLUNTEER RESERVE.

Late Temp. Surg. Sub-Lt. A. S. Bradlaw, entered as Proby. Surg. Lt., and attached to the Bristol Division.

Proby. Surg. Sub-Lts. H. O'Connor and R. A. Pallister to *Tiger*, addl., for 28 days' training (appt. to *Cyclops* cancelled).

ROYAL ARMY MEDICAL CORPS.

Maj. A. B. Murray, having attained the age limit, is retd. and retains the rank of Maj. with permission to wear the prescribed uniform.

Maj. A. W. Gater retires on retd. pay and is granted the rank of Lt.-Col.

Temp. Capt. H. C. Beasley and Temp. Capt. T. B. A. Haggard relinquish their commns. and retain the rank of Capt.

The undermentioned Majs. to be Lt.-Cols.: J. Mackenzie, vice Lt.-Col. A. A. Seeds, to retd. pay; N. D. Walker, vice Lt.-Col. F. J. Brakenridge, promoted.

Maj. and Bt. Lt.-Col. H. J. Crossley to be Lt.-Col., vice Lt.-Col. N. J. C. Rutherford, promoted.

Col. C. B. Martin, late R.A.M.C., retires on retd. pay.

Royal Army Medical College: Col. C. W. Mainprise, late R.A.M.C., has been appointed Comdt.

TERRITORIAL ARMY.

General Hospitals: Capt. G. J. Linklater (late R.A.M.C., T.F.) to be Capt.; Lt. G. A. Fisher to be Capt. (Prov.); Lt. C. A. Cowie (late Gordon Highlanders (T.A.)) to be Lt.

Supernumerary for Service with the O.T.C.: Capt. W. E. Le Gros Clark (late R.A.M.C., S.R.) to be Capt.

Capt. W. T. Briscoe to be Maj.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. F. Hawthorn, from Active List, to be Lt.-Col.

INDIAN MEDICAL SERVICE.

Lt.-Col. N. J. C. Rutherford, from R.A.M.C., to be Col., vice Col. C. B. Martin, to ret. pay.

The King has been pleased to give and grant unto Dr. Charles Todd, Technical Expert to the Egyptian Department of Public Health, His Majesty's Royal licence and authority to wear the Insignia of the Second Class of the Order of the Nile, which decoration has been conferred upon him by the King of Egypt in recognition of valuable services rendered by him.

Correspondence.

"Audi alteram partem."

CARDIAC DISEASE AND WORK.

To the Editor of THE LANCET.

SIR,—In the out-patient practice of a hospital, and also to a less extent in private practice, the main question in regard to heart disease for a patient who is not bedridden is the finding of a suitable occupation. Thirty years ago, when a student, I was impressed mainly with the importance of rest in heart disease, and the help afforded by digitalis in cases of cardiac breakdown. Medical opinion would now seem to have moved to the opposite extreme, and to be mainly impressed by the importance of exercise in heart disease. True, indeed, as far back as 1890 Oertel had suggested the advisability of mild hill-climbing in cases of heart disease, which was followed later by the exploitation of the Nauheim baths and remedial exercises. It is now generally realised that hearts may be underworked as well as overworked. As a rule, the term disease seems to imply something which is progressive; now there are numerous cardiac affections which, though the result of disease, would be better regarded as disabilities, just as a man who has had infantile paralysis suffers from a disability which is the result of a disease, but can no longer be regarded as having a disease.

In considering the question of work, the problem is how, after all acute conditions have subsided and all probability of a cardiac breakdown averted, with the minimum amount of departure from his ordinary activities, a patient with disease of the heart can make the best of himself. Without definitely trying, it is not easy to say what occupations are fitting and what are not for a patient with cardiac disease, so extremely individual is the lesion. There are, however, certain general principles which may be usefully observed in guiding a patient with cardiac disease to the right occupation. Needless to say, a man, wherever it is possible, should continue at the work to which he is accustomed, for even though the work may be comparatively heavy, he will by long use and wont have acquired the knack of economising his energy so that for him the work may be admissible.

There are, doubtless, certain conditions of work which are unfavourable to most cases of cardiac disease.

1. All occupations involving sudden jerks or spurts and periodical rushes—soldiers, sailors, dock labourers, stokers, &c.
2. Occupations which require frequent stair-climbing or running errands.
3. Prolonged standing such as is required by salesmen.
4. Occupations which involve frequently moving from hot to cold rooms and vice versa—this is particularly unfavourable for such patients as are liable to attacks of angina.
5. Conditions which require work to be done in an overheated atmosphere, such as tobacco drying, or working in large scale cucumber frames.
6. Occupations requiring much use of the arms. Often patients with cardiac disease can walk for considerable distances and indulge in other such forms of exertion with impunity, while anything which requires quite a slight use of the arms, such as dressing or carrying a light bag, may be prejudicial to them. The case of a music teacher came before me, who could do her teaching quite satisfactorily, but a small amount of actual playing herself soon exhausted her.
7. Outside work, as a rule, is much heavier than work indoors, and though it may have some advantages, one must remember that the benefits of the air are often counterbalanced by the changes of temperature and the dangers of getting wet, for those who have rheumatic tendencies and are susceptible to colds and bronchitis.
8. Some occupations are more likely to induce psychic disturbances than others, and these should be particularly avoided by cardiac patients.

It might seem from the above as though there would not be many occupations open to patients with heart disease, and, no doubt, for the absolutely unskilled manual labourer the outlook is an unfavourable one; on the other hand, the tendency nowadays is for work to become less and less entirely unskilled. Apart from the numerous forms of work which come under the head of "clerical," the following occupations are fairly suitable for most forms of cardiac disease.

1. Tailoring.
2. Some forms of bootmaking.
3. Basket-making.
4. Leather work.
5. Telephone operating.
6. Piano factories, "assembling small parts."
7. Fountain-pen factories.
8. Painting.*

* As this often necessitates going up ladders it will not be suitable for cases with aortic disease who are liable to fainting attacks.

In all occupations one of the most important things to consider is the regularity of the hours as well as the actual amount of work to be done, also whether the man has to travel far to his work, involving hurry to catch train, tram, or 'bus. In any given case when selecting an occupation for a patient with cardiac disease, we should carefully consider the cause of the cardiac lesion, for, if it is a valvular lesion, the result of some rheumatic affection, though there is a risk of a recurrent attack and possible further damage to the heart, yet, on the whole, such cases can often do fairly hard work, whereas when the cardiac condition is the result of myocardial degeneration, the amount of work which can be obtained from such cases is much more moderate. As yet we are hardly in a position to interpret the degree of heart weakness in terms of industrial effort.

I am, Sir, yours faithfully,

Montagu-square, W., August 28th, 1924. R. O. MOON.

"ON THE BREAST": AN EXPLANATION.

To the Editor of THE LANCET.

SIR,—The kindly criticism which appeared in your paper on my book "On the Breast" on August 9th contains a statement which perhaps calls for an explanation on my part. Your critic says: "The statement in the preface, however, that no book on the breast has appeared for 20 years is not wholly correct, for a monograph of about the same extent as the present one was published last year and was reviewed in THE LANCET of Oct. 6th, 1923."

He has overlooked another part of my statement which contains the explanation of this seeming inaccuracy; the context is as follows: "It is more than 20 years since the last book on the subject was published in this country by Marmaduke Sheild, and the notice of his death only appeared in the papers when the MS. had already gone to the press. His book remains a mine of information and a monument to his memory." This statement was true when it was written. Marmaduke Sheild died August 4th, 1922, and his obituary notice appeared in THE LANCET on August 19th, and was still fresh in my memory when writing the preface, which thus dates itself to a much earlier period than the appearance of my book.

Unforeseen difficulties in connexion with turning all the illustrations into line drawings delayed the production of the work for more than a year. This accounts for my apparent discourtesy and lack of reference to the excellent monograph of Mr. Willmott Evans, which I am only too glad to have this opportunity of acknowledging, and apologising to him for my seeming rudeness. It is the more necessary to do so as I think your statement has inspired a similar one in the *University College Hospital Magazine*. Here the writer evidently thinks that the second edition of Sampson Handley's work on "Cancer of the Breast" has been referred to and overlooked, but this deals only with cancer of the breast, and is not a book dealing with its general diseases.

I am, Sir, yours faithfully,

DUNCAN C. L. FITZWILLIAMS.

Grosvenor-street, W., August 22nd, 1924.

THE DIAGNOSIS OF PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

SIR,—There is an ingenious trick, due I believe originally to the late Prof. S. G. Shattock, for getting a comparative view of the size of red cells which is available to those who are not prepared to face the complications of Dr. A. Pijper's apparatus (THE LANCET, August 23rd, p. 367) or the labour of Dr. C. Price-Jones's exact measurements. The blood film of the patient is made on a slide in the ordinary way, and one of one's own blood on a cover-glass; both are stained and dried and then mounted with balsam in contact with one another. The two layers of red corpuscles are quite distinct from one another, but a small turn of the fine adjustment brings them into view successively so quickly that it is easy to see whether there is any striking difference in size.

I am, Sir, yours faithfully,

A. E. BOYCOTT.

University College Hospital Medical School,
August 26th, 1924.

STAFF PAYMENT AT THE BRITISH DENTISTS' HOSPITAL.

To the Editor of THE LANCET.

SIR,—I wish to thank you for the comprehensive report [1] you have made of the work being done by this hospital. It is, however, misleading to state simply that the dentists act in a purely honorary capacity. The work of the hospital divides into several branches. First, that of a public dental service open to all but those who are able to pay dentists' ordinary fees. For this work the dentists give their services voluntarily, receiving only out-of-pocket expenses for dentures and the like. Secondly, the maternity and child welfare and tuberculosis centres are worked by dentists who are appointed by the hospital under the local medical officer of health and are paid the usual fee per session. Thirdly, the L.C.C. dental clinic at which dentists appointed by the hospital with the approval of the L.C.C. are paid by the hospital at the usual rate.

The remarks of Sir Harry Baldwin at the annual meeting were intended to apply to the hospital work only as carried on by the voluntary staff. Patients pay fees according to their means and these fees go toward the maintenance of the hospital. If they are able to pay above a maximum they are referred to local dentists.

I am, Sir, yours faithfully,

GEORGE THOMSON,
Chairman, Executive Committee.

31, Camden-road, N.W. 1, August 28th, 1924.

THE CLINICAL THERMOMETER AS A CARRIER OF INFECTION.

To the Editor of THE LANCET.

SIR,—I was interested to read Major H. C. Brown's letter on this subject. It has always seemed to me that the clinical thermometer, if insufficiently sterilised, is a very active carrier of infection. In hospitals I have seen it conveyed from the mouth of one patient to that of another after a few minutes immersion in a solution of about 1 in 60 of carbolic acid. By this immersion the thermometer was supposed to be sterilised. That such sterilisation is useless goes without saying. I agree that washing with water is also ineffective.

For many years I have always carried my thermometer in a special case. This case is solidly made and has a very long thread on it, so that leakage is impossible. In the case is either methylated spirit or absolute alcohol. After using the thermometer I wash it well and then return it to the case. By adopting this method I believe the chances of carrying infection on the thermometer are very small indeed. I get special 2½ inch thermometers, with a magnifying lens, and the case is 3 inches long only, so that it cannot be called cumbersome. Various instrument makers supply these cases; the one I have, some 12 years old, happens to be stamped with the name of Maw. Doubtless this firm still supplies the same case.

It is not necessary to renew the spirit more than about once a week. I believe the method is thoroughly effective, and is certainly very little trouble. I do not think there is any doubt that hypodermic syringes can be kept sterile in a case containing absolute alcohol; I do not see why the same method should not be as efficacious with thermometers.

I am, Sir, yours faithfully,

A. GRAHAM-STEWART, M.B., Ch.B.

Margate, August 22nd, 1924.

[1] THE LANCET, August 16th, p. 333.

SELECTIVE COLLAPSE IN ARTIFICIAL PNEUMOTHORAX.

To the Editor of THE LANCET.

SIR,—Dr. R. C. Wingfield's letter, under this title, in your issue of August 16th bears witness to the important practical results which may follow from recognition of the principle expressed in the words "if small quantities of air are introduced into a free pleural cavity containing a lung only partially infiltrated with tuberculosis, the air so introduced will tend to collect over or round the diseased areas only, collapsing these, and leaving the rest of the lung expanded and capable of function."

He gives the credit for demonstrating this selective localisation of the air in the pleura to the American workers, Barlow and Kramer.[1] As a matter of fact, Dr. Parry Morgan, working in this laboratory during 1911–13, was the first (so far as I am aware) to show that such a localisation must occur, since the presence of a relatively inelastic tuberculous focus in the lung creates a condition of increased tension along an axis passing from the root of the lung, through the focus, to the chest wall. In his paper on the Possibility of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax[2] Dr. Parry Morgan stated this view very clearly; he also described an experiment which served to demonstrate that such a localisation did actually occur, and went on to advocate the induction of partial pneumothorax, if necessary on both sides of the chest simultaneously.

Unfortunately the outbreak of war interfered with the continuance of his work and the reporting of cases treated on these lines, but a brief reference to the latter will be found in the *Quarterly Journal of Medicine* for 1917, vol. ii., p. 1.

I am, Sir, yours faithfully,

LEONARD COLEBROOK.

Inoculation Department, St. Mary's Hospital,
Paddington, W., August 22nd, 1924.

To the Editor of THE LANCET.

SIR,—Dr. Wingfield states that no great interest has been aroused by the report of Nathan Barlow and David Kramer, published in the *American Review of Tuberculosis* (April, 1922), regarding selective collapse in artificial pneumothorax. We entirely agree with him that this modification of artificial pneumothorax treatment opens up great possibilities and certainly requires fuller investigation. At the City of London Hospital for Diseases of the Heart and Lungs a few cases have been treated on the lines that Barlow and Kramer suggest, not, however, with quite the same degree of success as they would seem to indicate. In addition to recommending this form of treatment for incipient and early cases which are making no progress in spite of

[1] American Review of Tuberculosis, April, 1922.
[2] THE LANCET, 1913, ii., 18.

careful treatment, they also apply it to cases with quite extensive disease. It is in this latter type that, in our experience, adhesions are so commonly found, and interfere with or entirely prevent collapse of the affected portion of lung.

In the small number of cases under the care of Dr. Clive Riviere to whom this treatment was applied, all had considerable disease of one lung and sufficient in the other to preclude complete collapse of the more affected lung. In these cases adhesions caused considerable difficulty, and we should be interested to know in what percentage of Barlow and Kramer's cases the same complications occurred. We cannot agree with them that there is little or no general disturbance during treatment, as nearly all our cases showed febrile reactions, a point to which we have referred in a paper on Artificial Pneumothorax, to be published shortly.

The X ray photos of these cases are not always easy to interpret owing to the fact that if the pocket of air is confined to the anterior surface of the lung, at no place on the skiagram is there an absence of lung detail indicating the presence of a pneumothorax. The X ray photos of Dr. Wingfield's cases, though not very convincing at first sight, are more intelligible if this point is borne in mind, and would, no doubt, be quite conclusive if stereoscopic pictures had been taken.

We are, Sir, yours faithfully,
F. BEDO HOBBS, M.B., M.R.C.P., D.P.H.
A. I. G. MCLAUGHLIN, M.B., Ch.M.

August 21st, 1924.

IS LYMPHATIC OBSTRUCTION A FACTOR IN SPRUE?

To the Editor of THE LANCET.

SIR,—Recently two cases have come under my care which may possibly throw some light upon the pathology of sprue, a disease the pathology of which is still obscure. In both these cases laparotomy was performed for chronic appendicitis, and it was observed that there were certain changes in the small intestine and the lacteals. Dr. P. H. Manson-Bahr, in his interesting article in your issue of June 7th last, calls attention to the importance of post-mortem examinations in the earlier stages of the disease. Such opportunities are of comparatively rare occurrence. In addition, there is the possibility of observation during laparotomy performed for surgical complaints. The following are instances of the latter:—

1. Mrs. H. was operated upon for chronic appendicitis on April 30th, 1924. She gave a history of sprue two years previously, and stated that though better she still had loose stools. At the operation, noticing that the ileum was thinned and of different colour from normal, I pulled down a piece of jejunum and found a very striking condition. All the lacteal vessels stood out in a most remarkable manner, each group of blood-vessels being accompanied by a white knotted cord, which could be traced across the surface of the intestine back into the mesentery for some distance. It gave the appearance of a piece of thick cotton having been inserted along the course of all the vessels with knots tied at regular intervals. This condition was uniform throughout the few coils of intestine which I examined. The intestinal wall was of a dull brownish mottled appearance, darker brown areas merging into areas of a lighter shade. During convalescence the stools were not typical of sprue but loose and pale.

2. Mrs. S. On May 28th, 1924, I had the opportunity of verifying the above observations in a case of definitely active sprue with characteristic stools, operation being performed for chronic appendicitis. I found a very similar condition of the intestine and lacteals. In addition, the mesenteric glands were seen to be swollen. The lacteals on closer examination were found to collapse on pressure with the point of the needle and did not appear to be thickened as far as one could make out. In neither case did I find anything indicative of ulceration of the small intestine. However, with a small appendix incision one's opportunity for a thorough exploration was necessarily restricted.

Never having seen the above-noted appearances before during a considerable experience of abdominal surgery, I cannot think there is any doubt that these are manifestations of sprue. Moreover, a distended condition of the lacteals, as a physiological state, is far from probable after a period of starvation preparatory to operation. Two facts would appear to be possible to infer from a condition of distended lacteals: Firstly, that absorption is taking place from the mucous membrane of the small intestine; and, secondly, that there is a delay in the passage of chyle to the general system. The point arises as to where the delay occurs, and I would suggest the lymphatic glands of the mesentery as the most probable. In the case of Mrs. S., these glands were certainly enlarged. We know positively that the mucous membrane of the small intestine in the final stages of sprue becomes so profoundly changed that its power of absorbing is little or nil. In the period of active disease is the deficiency in absorption accounted for by a defect in the small intestine mucous membrane, obstruction in the lymphatic system, or by both?

Lymphatic obstruction may possibly be the predominant factor. As an hypothesis it is quite conceivable that the continued passage of toxin from the intestine may inflame and finally sclerose the lymph glands of the mesentery, hindering and finally blocking out the lymph passage way.

After all, what other chronic disease have we in the whole sphere of medicine in which large areas, if not the whole, of the small intestine mucous membrane is inflamed, evidenced by the destruction of the intestinal wall seen at autopsies as the most conspicuous lesion? The conception of concurrent changes in the mesenteric glands caused by their efforts to deal with noxious substances derived from the small intestine is quite within the range of possibility, and it should be remembered this may be going on from end to end of the small intestine. The putting out of action of small groups of mesenteric glands is well known in several diseases, but what disease except sprue puts such a heavy strain on the mesenteric glands as a whole?

Whatever the explanation of the peculiar appearances which I have described, I feel that they are of sufficient importance to record in the hope that surgeons and pathologists will pay particular attention to the lymphatic system when suitable opportunities arise.—I am, Sir, yours faithfully,

I. DAVENPORT JONES, M.D. Lond.,
Lieut.-Col., I.M.S.

Bombay, August 3rd, 1924.

INTOLERANCE TO A DENTURE.

To the Editor of THE LANCET.

SIR,—I have only just seen Dr. H. St. Arnaud Agate's request for advice on this condition in your issue of August 9th. I recently had a similar case under my care, a neurasthenic who had been under treatment in an officers' pensions hospital, where all his teeth had been extracted, presumably because they were carious. He had then been fitted with the lightest and most perfectly fitting dentures I had ever seen. These he had carried about for nearly two years, but he had never been able to wear them for longer than two minutes owing to invariable retching and vomiting. He told me that he had had the dentures in and out as many as a hundred times an hour. I swabbed his mouth thoroughly with a 10 per cent. solution of novocaine, and first fitted the lower denture. He retained this easily, so after 15 minutes I repeated the swabbing and applied the upper denture. He retched two or three times, but aided by a sharp command to "stick it," he succeeded in keeping the complete set in position. He left my room smoking a cigarette after 15 minutes' chatting, went home, had a hearty meal, and has worn the dentures ever since without trouble.

This method ought to succeed in Dr. Agate's case, as apparently the same neurasthenic element predominates as in my case.

I am, Sir, yours faithfully,
W. ARTHUR JACKSON, M.D.

Marple, Cheshire, August 25th, 1924.

UNIVERSAL ANÆSTHETIC APPARATUS.

To the Editor of THE LANCET.

SIR,—Mr. Langton Hewer is to be congratulated on the comprehensive apparatus he has produced, as described in your issue of August 16th. It is, I am sure, a step in the right direction—i.e., that of producing a universally applicable anæsthetic apparatus. From the block, however, the machine appears unduly complicated, and, as is usually the case, liberally festooned with rubber tubing. It has always seemed unfortunate to me that machines of this sort, which show a fairly high degree of mechanical complication, are not produced with permanent connexions which do not admit of mis-union and do not perish. I also welcome Mr. Hewer's concession to the views of the majority as regards anæsthetic agents, as indicated in para. (4) of his letter.

I am, Sir, yours faithfully,

R. J. CLAUSEN, M.B.

Carlton-hill, N.W., August 25th, 1924.

PLAGUE AND THE TARABAGAN.

To the Editor of THE LANCET.

SIR,—In your annotation entitled An Arraignment of the Bobac (THE LANCET, August 16th, p. 330) I note that you speak of Dr. M. T. Schreiber, whose article was published in 1907, as "an early writer" on the subject of plague and the tarabagan (*Arctomys bobac*). May I point out that Russian medical observers had written on this question many years earlier. In an article published in the *Journal of Tropical Medicine* of February, 1900, I quoted at some length all the information then available upon this question, from Russian and other sources. I there showed that, in the province of Transbaikalia, outbreaks of tarabagan plague had occurred at least as far back as 1881; and that, in Eastern Mongolia, similar outbreaks had recurred almost every year since 1888. I have since recorded, in your columns and elsewhere, many other outbreaks. The most authoritative Russian writers on the subject are Drs. Biélavski and Riéshetnikof, who published a detailed report on their observations in a Russian journal in April, 1895, and Dr. Zabolotny, who gave much highly interesting information on the subject in the discussions in the last International Sanitary Conference (Paris, 1911).

Your statement that "previous observations upon the tarabagan have been made rather by native hunters than by trained medical men," though probably literally true as regards the number of observations, is perhaps a little misleading. Russian observers have most carefully studied the whole matter; have demonstrated, at least 13 years ago, that the disease in the marmot is true plague; that it is caused by the same bacillus as human plague; that it is transmitted from animal to animal and from animal to man by fleas; and that the tarabagan disease was the source and origin of the truly terrifying epidemic of pneumonic plague in Manchuria in 1911.

Dr. Teh's report, on which your annotation is based, would seem only to confirm (save in the matter of transmission by fleas) the conclusions arrived at by Dr. Zabolotny and other Russian observers as far back as 1911.

I am, Sir, yours faithfully,

Ealing, August 18th, 1924. F. G. CLEMOW, M.D.

*** We should regret any slight upon the work done by trained Russian medical observers on the subject of the tarabagan plague. As British Delegate to the Constantinople Board of Health, Dr. Clemow kept us for many years closely in touch with outbreaks of tarabagan plague reported in Russian journals and archives. Reference to the summaries given in our issues of 1905, ii., 1731; 1909, i., 1863; 1911, ii., 786; and 1913, i., 1698, amongst others, will show how nearly Russian observers came to a final conclusion.—ED. L.

Obituary.

SIR WILLIAM MADDOCK BAYLISS, F.R.S.,

BY the death of Sir William Bayliss on August 27th there has passed away one of the greatest physiologists of modern times. William Maddock Bayliss was born at Wolverhampton in 1860. He was the only son of Moses Bayliss, an iron manufacturer, and received his education privately as he was of delicate constitution. He first entered his father's business, but not finding the commercial world congenial he decided to take up the study of medicine. He thus became apprenticed to a doctor in the old style and learned dressing and dispensing in the local hospital. In 1881, at the age of 21, he came to London and entered as a student at University College, where he came under the influence of two great biologists, Ray Lankester and Burdon-Sanderson. The following year he obtained the University Scholarship in Zoology and took the degree of B.Sc. He then began the study of physiology under Burdon-Sanderson, and, in 1883, when Burdon-Sanderson was transferred to Oxford, Bayliss continued his studies under Schafer, but he was not destined to advance any further in the medical curriculum. The subject of anatomy proved a dull one to him, and, having failed in this subject in the second M.B. examination, he gave up the idea of a medical qualification and turned his attention to physiology alone. This decision was, no doubt, taken under the profound impression Burdon-Sanderson and his work had made upon the young student, and in October, 1885, Bayliss followed Burdon-Sanderson to Oxford and entered Wadham College. Three years later he took a first class in the final School of Natural Science in Physiology. The circumstances of Bayliss's student life were destined to shape to no small extent his later activities. His experience of medical practice as a doctor's apprentice in Wolverhampton was of value to him later in enabling him to grasp the true value of medical problems and to perceive the practical application of physiology to these problems, and during his studies at Oxford, at an age senior to that of the average undergraduate, he acquired a breadth of outlook in matters philosophical which later distinguished him among his compeers. Having taken his degree, he returned to London and began work again under Schafer at University College. In the early part of 1890 E. H. Starling joined forces with him in the laboratory of University College, and thus was begun a scientific partnership which endured until Bayliss's death. In conjunction with Starling he did pioneer work on the electro-motive phenomena accompanying the heart beat, the arrangement of vaso-motor fibres in the sympathetic, the innervation of the intestine, the action of an extract of intestinal mucosa in stimulating the pancreas to secrete the osmotic pressure of colloids, the reaction of the blood, and a number of other physiological topics.

In 1893 Bayliss published a paper, which has since become classical, on the depressor nerves, and later, between 1901 and 1908, he wrote a series of papers on vasodilator nerves, their origin and mode of action. When in 1899 Starling was appointed to the Jodrell Chair of Physiology at University College in succession to Schafer, Bayliss acted as his assistant, and took an active part in the teaching of the department, finally becoming professor of general physiology in 1912. From 1904 onwards he produced a long series of papers in the *Journal of Physiology* and elsewhere, and his monograph on the nature of enzyme action, published in 1908, has since gone through four editions. In 1914 appeared the "Principles of General Physiology," and in 1919 Bayliss received the Copley Medal of the Royal Society. The Copley Medal is awarded to the living author of such philosophical research as may appear to be deserving of that honour. It was given to Stephen Hales, the curate of Teddington, who first measured blood pressure, in 1739, and the

next English physiologist to receive it was Bayliss. The award was the testimony of the scientific world of its appreciation of the sterling work of some 10 years which culminated as regards its outward and visible signs in the publication of the "Principles of General Physiology." It was by the "Principles" that the world which was not lucky enough to be in personal contact with him learned that he was really a great man. Since the first publication of "Foster's Text-Book" there had been no outstanding book in English till the "Principles" came and showed us what Bayliss thought physiology was about; both books stand out because they are impressed with the personality of the authors and they are valued because of that personal character, as well as for the learning that they represent. The biologist may complain that much that might reasonably be called general physiology finds no place in its pages. But the author is less concerned with the characteristics of life than with the mechanisms through which they are manifested; his object, as he says, is to discuss the physical and clinical processes which intervene in the phenomena of life. But this is because it is only to these processes that it is possible to apply the experimental method with profit, and whatever the book includes and whatever it omits, as a matter of experience one finds it in use by physiologists, pathologists, zoologists, botanists, and even chemists, who dig in it, and will continue to dig in it, fruitfully for the sake of the Bayliss which they find there.

Sir E. Sharpey Schafer writes:—

"I have known Bayliss intimately for more than 40 years, his early research on vaso-dilator nerves and the one, with Rose Bradford, on the electromotive changes in the salivary glands having been conducted in the old physiological laboratory at University College in the 'eighties. From the very first his experiments were characterised by the care with which they were thought out and the accuracy with which they were performed. His apparatus was never elaborate, but, with Faraday, he knew how to obtain important results by simple means. The single desire to arrive at the truth, without any idea of personal achievement, has furnished the keynote of his career. Not only is his work remarkable for the number and variety of its contributions to physiological knowledge, but still more for the breadth of view which marks its exposition. This feature eventually culminated in his monumental work on "General Physiology," which, more than any other publication in any language, has contributed towards laying a sure foundation of physiology in all its modern developments; every branch of the subject—histology, physics, chemistry, and most of all physical chemistry—having been called upon to contribute its quota.

"Regarding his personal characteristics it is impossible to speak too warmly. The cheerfulness and geniality of his disposition endeared him to his friends; and since these comprise most of his physiological colleagues in all parts of the world, it is certain that no presence will be more missed at future gatherings of physiologists than that of Sir William Bayliss."

Bayliss was knighted in 1922. He received honours also from many foreign academies and from universities and learned societies at home and became an honorary Fellow of his old college, Wadham. He could write after his name M.A., D.Sc. Oxf., hon. LL.D. Aberd. and St. And., hon. Sc.D. Dub. He was chairman and member of numerous committees, treasurer of the Physiological Society, and in 1923 accepted the post of editor of *Physiological Abstracts*. But from first to last he was a student. He escaped the administrative entanglements of the modern university professor and gave himself whole-heartedly to the pursuit of knowledge; he proved all things and held fast that which was good. At any rate for elementary students he was an indifferent expositor and it was not very easy to get him to interest himself seriously in anything but his own problems—which is apt to be a characteristic of the investigators who find things out. But all who were in contact with him knew that there came from him something more than a charming friendliness and sympathy and an amazing wealth of knowledge—something by way of ideal inspiration and point of view which represents university teaching at its highest.

He married in 1893 Gertrude Starling, sister of his friend and fellow worker, and had three sons and one daughter.

WILLIAM AUGUSTUS MAYBURY, M.D., M.CH. R.U.I.

THE recent death at his residence, West Stockwell-street, Colchester, of Dr. William Augustus Maybury, aged 77, second son of the late William Augustus Maybury, surgeon, of Frimley, Surrey, removes one of the best known of Colchester's medical practitioners. Possessed of remarkable vitality for his age, he retained his faculties and interest in affairs to the end. Dr. Maybury held a record which must be unique for a local doctor. He was in practice in the borough for half a century, was churchwarden of St. Martin's for nearly that period, was the borough police surgeon for over 40 years, and held an appointment as medical officer in the Colchester Union from 1876 until ten days before his death. Educated at the City of London School, he started his medical career at St. Thomas's, qualifying as M.R.C.S. Eng. in 1870 and as L.S.A. in the following year. In 1871 he also graduated M.D. at the Queen's University, Ireland. His first appointment was as house surgeon to St. Thomas's Hospital, followed by the post of resident medical officer to the Newark Hospital. Dr. Maybury will be remembered by many for his cheerful and kindly disposition. As a witness in his capacity of police surgeon he was one of the most precise and painstaking of doctors. His evidence, which always carried weight, was scarcely ever called into question.

Thomas Sydney Short, M.D. Lond., D.P H. Camb., senior physician to the General Hospital, Birmingham, died recently from a seizure at Claverdon, Warwick, while on holiday.

THE LATE DR. E. S. PATTISON.—Edward Seton Pattison, M.R.C.S. Eng., L.R.C.P. Edin., who died on August 27th in Charing Cross Hospital, London, at the age of 69, was at one time medical officer of the St. Mark's Training College, Chelsea, and was divisional surgeon to the Metropolitan Police. Dr. Pattison studied medicine at Charing Cross Hospital and qualified in 1879. As a student he acted as surgeon to the British National Aid Society in Bulgaria and Rumania during the Turko-Russian War of 1877–78, and received the Second Class of the Star of Rumania.

THE LATE DR. J. LASCELLES.—John Lascelles, M.B., Ch.B. (Hons.) Belf., who died suddenly of heart failure at his residence at Earlestown, Lancs, on August 16th, was born in 1892 in Downpatrick, Co. Down, Ireland. He received his medical education at Queen's University, Belfast, where he won scholarships in the Second and Third Medical Examinations, and a special exhibition in surgery in the Final Examination. Qualifying in 1917 he joined the R.A.M.C. as Lieutenant, and, after service in East Africa and Constantinople, was promoted Captain. On demobilisation he took up general practice in Earlestown, where he remained until his death. Dr. Lascelles married a daughter of the late Dr. Archibald Wallace of Rochdale in 1921.

DR. E. H. LIPSCOMB.—A tragedy at sea has deprived the medical profession of a well-known member in the person of Dr. Eustace H. Lipscomb. Dr. Lipscomb, with his sister-in-law and his two children, was sailing with a boatman round a harbour off the coast of Brittany, when the boat capsized, with the result that Dr. Lipscomb and his sister-in-law were drowned, the children being fortunately saved by a passing fishing-boat. Dr. Lipscomb, who was 64 years of age, was educated at Norwich Grammar School, Caius College, Cambridge, and Guy's Hospital, and spent most of his professional life at St. Albans. Here he was equally well known as a doctor and in the public life of the city, and served as mayor, a position which had been previously occupied by both his father and his grandfather. The accident occurred on August 26th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—As the result of recent examinations the following candidates passed in the undermentioned subjects:—

Surgery.—M. Bannounah, Guy's Hosp.; E. H. Boodrie, St. Mary's Hosp.; J. Crawford, Royal Free Hosp.; F. M. Deighton, Univ. Coll. Hosp.; C. S. Forrest, Manchester and Middlesex Hosp.; J. W. Graham, Manchester; J. C. C. Langford, Manchester and St. Bart.'s Hosp.; Z. Roodyn, Middlesex Hosp.; and C. W. Warne, Guy's Hosp.

Medicine.—F. M. Deighton, Univ. Coll. Hosp.; J. W. Graham, Manchester; G. L. W. Iredale, Edinburgh and St. Mary's Hosp.; W. R. S. Jacques, Ghent; A. J. Moody and H. Morris (Sect. II.), St. Bart.'s Hosp.; W. E. Pennington, Liverpool; Z. Roodyn, Middlesex Hosp.; and J. G. E. Vachell, St. George's Hosp.

Forensic Medicine.—H. L. Bernstein, Guy's Hosp.; A. K. A. Carter and F. M. Deighton, Univ. Coll. Hosp.; R. C. Glover, Leeds; J. W. Graham, Manchester; A. J. Moody, St. Bart.'s Hosp.; W. E. Pennington, Liverpool; B. A. Perott, Petrograd; M. Schwartzman, Odessa; and Z. Roodyn, Middlesex Hosp.

Midwifery.—W. Bentley, Birmingham; F. M. Deighton, Univ. Coll. Hosp.; J. W. Graham, Manchester; J. C. C. Langford, Manchester and St. Bart.'s Hosp.; E. J. P. McDowell, St. Thomas's Hosp.; W. E. Pennington, Liverpool; and Z. Roodyn, Middlesex Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: J. Crawford, F. M. Deighton, J. W. Graham, G. L. W. Iredale, J. C. C. Langford, H. Morris, Z. Roodyn, and J. G. E. Vachell.

DIPLOMA OF LARYNGOLOGY AND OTOLOGY OF THE CONJOINT COLLEGES.—In the article upon Special Diplomas in the Students' Number of THE LANCET, published last week, there was an omission to mention the special Diploma in Laryngology and Otology granted by the English Conjoint Board (D.L.O.). This Diploma was instituted in 1923, and the conditions for obtaining it follow the accepted pattern. Candidates must possess a registrable qualification, and will be examined in the anatomy, physiology, medicine, surgery, and pathology of the ear, nose, pharynx, larynx, trachea, bronchi, and œsophagus. The examination takes place twice yearly, and notice of entry, with fee of £6 6s., should be sent 14 days previously to the Secretary, Examination Hall, Queen-square, London, W.C. 1.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Sept. 8th a three weeks' course in ophthalmology commences at the Royal Westminster Ophthalmic Hospital. Clinical instruction will be given every afternoon from 2 o'clock and special demonstrations three times a week on methods of examination, fundus class, and common affections of the eye. A fortnight's course has been arranged at the Infants Hospital from Sept. 15th to 27th. The syllabus deals with diseases of infants from various aspects and consists of clinical demonstrations, "round table" consultations, lectures, &c. Three visits of inspection are to be made: To St. Margaret's Hospital for Ophthalmia Neonatorum, Thavies Inn (Holborn), and the Nursery Training School (Golders Green). A fortnight's intensive course in medicine, surgery, and the various special departments will be held at the Westminster Hospital from Sept. 22nd to Oct. 4th, of which further particulars will be shortly published. Dr. Porter Phillips and Dr. Thomas Beaton will give a series of lecture-demonstrations on Tuesdays and Saturdays, at 11 A.M., in psychological medicine at the Bethlem Royal Hospital from Sept. 30th to Oct. 25th. Courses arranged for October are: Diseases of children, diseases of the ear, nose, and throat, electrotherapy, tropical medicine, urology, and a fortnight's intensive in medicine and surgery and other departments. Full particulars can be obtained from the Secretary of the Association, 1, Wimpole-street, W. 1.

UNIVERSITY COLLEGE HOSPITAL, LONDON.—The annual dinner of the past and present students of University College Hospital will be held at the Hotel Cecil on Friday, Oct. 3rd, at 7.30 P.M. Dr. Michael Foster, O.B.E., will be in the chair. Tickets can be obtained from the secretaries, Mr. Gwynne Williams and Prof. T. R. Elliott, University College Hospital Medical School.

DONATIONS AND BEQUESTS.—By will the late Mr. Richard Stanley Varley, after certain minor bequests, left the residue of his property, about £20,000, to his brother Gilbert with the request, but without creating any trust in the matter, that if circumstances hereafter should permit, there should be paid £2000 to Magdalen College, Oxford, for the Alec Varley Fund, and the balance of the residue to the Vice-Chancellor of the University of Oxford, for the advancement of science, and in particular for medical research.

CUMBERLAND INFIRMARY, CARLISLE.—A gift of £1500 has been received by this infirmary from Mr. P. H. Holt, High Sheriff of Cumberland, for the purpose of establishing a pathological laboratory at the institution. At a recent quarterly meeting of the governors Dr. N. Maclaren said that the need for such a laboratory had been felt by the staff for a long time, and its provision would mark a new era in the life and utility of the Cumberland Infirmary.

KING EDWARD'S HOSPITAL FUND FOR LONDON: KING'S COLLEGE HOSPITAL.—In accordance with the decision of the Fund to apply the legacies of the late Mr. and Mrs. John Wells, estimated at over £200,000, to extensions, improvements, and other special needs of hospitals, a grant has been made to enable 14 additional beds for accident cases to be opened at King's College Hospital. The need for additional accommodation for accident cases was emphasised in the report, issued last spring, of a special committee of the Fund.

BRIGHTON AND ROSE DAY.—The allocation has just been made of the proceeds of Alexandra Day in Brighton and district, which amounted to £750. The distribution was as follows:—Royal Sussex County Hospital, £275; Royal Alexandra Hospital for Sick Children and the Sussex Maternity and Women's Hospital, each £73; Brighton and Hove Dispensary, £80; Lady Chichester Hospital and the new Sussex Hospital, each £48; Eye Hospital and Queen's Nurses, each £31 10s.; Surgical Aid Society, £22; and the Brighton Dental Hospital and the Clayton and Keymer Nursing Association, each £10.

MANCHESTER ROYAL EYE HOSPITAL.—The annual report for 1923 states that 30,502 out-patients and 2046 in-patients were treated; the average length of stay in the hospital of the in-patients was 19·1 days. The number of accidents treated was 8497, an average of 23·3 per day. The income from all sources was £18,808, and the expenditure £13,035. Amongst the specified returns of cases of diseases under injuries, 7938 are set down to metal "chips." Amongst diseases there were 330 cases of blepharitis, 331 of chalazion, 559 of keratitis, 516 of kerato-iritis, and 219 of leucoma and nebula; 586 of senile cataract and errors of refraction, 1338 of hypermetropia, 1040 presbyopia, 677 myopia, and 3157 cases of astigmatism of varied forms. Of convergent strabismus there were 1324 cases. Twenty-six cases of ophthalmia neonatorum were admitted.

A CONFERENCE ON MEDICINE IN INDUSTRY.—The annual week-end conference of the Institute of Industrial Welfare Workers, to be held at The Hayes, Swanwick, Derbyshire, from Sept. 26th to 29th, has chosen for its subject the Doctor and the Psychologist in Industry. On Saturday afternoon the subjects for discussion will be: What (1) Psychology, (2) Medical Science can do for Industry," the former being introduced by Dr. C. S. Myers, F.R.S., director of the Institute of Industrial Psychology; the second by Dr. W. F. Dearden, hon. secretary of the Association of Certifying Factory Surgeons. In the evening accident prevention will be dealt with from the psychological aspect by Dr. M. Culpin, lecturer on psychotherapy at the London Hospital; from the physiological aspect by Dr. H. M. Vernon, investigator for the Industrial Research Board. Discussions of a more general character will occupy the Sunday. The hostess is a well-known welfare worker, and other leading representatives of the welfare movement will take the chair at the several gatherings. The conference secretary is Miss N. J. Kessler, West Lynn, Altrincham, Cheshire.

CITY AND HOSPITALS' CHARITY ATHLETIC CONTEST. To-day, Saturday, Sept. 6th, the third annual charity athletic contest between the Banks (holders), Stock Exchange, insurance offices, and hospitals, for the *Financial Times* challenge shield will be held at the Crystal Palace. Apart from the challenge trophy, which is held for a year by the institution scoring the greatest number of points, there are no prizes or awards of any kind. The athletes, who will include members of the British Olympic Games team, national and other champions, compete purely for the honour of representing their respective institutions and for the cause of charity. The programme consists of level flat events at 100, 220, 440, 880 yards, mile, three miles, and 120 yards hurdles, two miles walk, high and long jumps, putting the weight, and mile relay. In order that the entire proceeds may be divided between the London hospitals the *Financial Times* is again paying all expenses of the meeting. Tickets, 1s. 6d. (including admission to the Palace and covered stands), may be obtained from the hon. secretary, Mr. R. A. Lyons, at St. Bartholomew's Hospital, or from the *Financial Times*, 72, Coleman-street, London, E.C. 2.

NORTH WALSHAM WAR MEMORIAL COTTAGE HOSPITAL.—On August 27th the cottage hospital raised by the town and district of North Walsham as a memorial to the 179 men from the locality who fell in the late war was opened by Her Highness Princess Marie Louise. The total sum subscribed to build, equip, and endow the memorial amounted to £8700, and the hospital was opened practically free from debt. Sir Hamilton Ballance, hon. consulting surgeon to the new institution, referred at the opening ceremony to the need of an X ray installation for minor work in every cottage hospital, and hoped it would not be long before North Walsham had the necessary apparatus.

BOLINGBROKE HOSPITAL, WANDSWORTH COMMON S.W.—The sum of £10,000 has been given to this hospital by Sir James and Lady Carmichael, of Kingston Hill Place, Kingston, towards the cost of erecting the William Shepherd memorial wing. The cost of this wing, when fully equipped, will amount to £60,000.

Appointments.

DICKSON, W. M., M.B. Ch.B., F.R.C.S. Eng., has been appointed Surgeon to Out-patients, Willesden General Hospital.

HART, E. R., M.R.C.S., L.R.C.P. Lond., Certifying Surgeon under the Factory and Workshop Acts for the Hertford District of the County of Hertford.

NEILSON, J. P., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Llansawel District of the County of Carmarthen.

TUOHY, P. G., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Uckfield District of the County of Sussex.

Westminster Hospital Medical School: WILSON, J. G., M.B., B.S., M.R.C.S., L.R.C.P., D.P.H. R.C.P.S. Eng., House Physician and Resident Medical Officer; COLES, B. A., B.Sc. Wales, M.R.C.S., L.R.C.P., Resident Obstetric Assistant; WILLIAMS, D., M.R.C.S., L.R.C.P., HARRIS, I., M.R.C.S., L.R.C.P., House Physicians; POOLE, E. B. M.R.C.S., L.R.C.P., ZIMMERMAN, M., M.R.C.S., L.R.C.P., BENNION, F. R., M.R.C.S., L.R.C.P., House Surgeons; DAVIES, M., M.R.C.S., L.R.C.P., Assistant House Physician; DAVIES, J., M.R.C.S., L.R.C.P., Assistant House Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne, District Infirmary and Children's Hospital.—Hon. M.O. for Electro-Therapeutic Dept.

Barnsley County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £600.

Birmingham General Dispensary.—M.O. £550.

Bootle Borough Hospital.—Sen. M.O., also two Jun. M.O.'s. £150 and £125 respectively.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £120.

Bristol, Cossham Memorial Hospital, Kingswood.—H.S. £150.

Carshalton, Queen Mary's Hospital for Children.—Asst. M.O. £500.

Chester Royal Infirmary.—Asst. H.S. £150.

Coventry and Warwickshire Hospital.—Vacancy on Hon. Surg. Staff.

Dover, Royal Victoria Hospital.—H.S. £180.

Exeter, Royal Devon and Exeter Hospital.—H.P. £150.

Gloucestershire Royal Infirmary, Gloucester.—Asst. P. and Pathologist.

Halifax Royal Infirmary.—Third H.S. £150.

Leeds Public Dispensary.—Jun. Res. M.O. £150.

Maidstone, West Kent General Hospital.—Two H.S.'s. Each £220.

Manchester Education Committee.—Asst. Sch. M.O. £600.

Manchester University.—Asst. Lecturer in Chemical Pathology. £300–£500.

Middlesex Hospital and Medical School, W.—Surg. Reg. £300.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—M.O. for Out-patients. £125.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—H.P.'s and H.S.'s. Each £50.

Northampton County Mental Hospital, Berrywood.—Jun. Asst. M.O. £350.

Northampton General Hospital.—Hon. P.

Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £150.

Prince of Wales's General Hospital, Tottenham, N.—H.S.'s, H.P. Each £150. Also Jun. H.S. and H.P. Each £110.

Royal Free Hospital, Gray's Inn-road, W.C.—Med. Reg.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Two H.S.'s. Each £150.

Royal Naval Medical Service.—Surg. Lieuts. 25*s.* per day.

Royal Northern Hospital, Holloway, N.—H.S. £75.

St. Peter's Hospital for Stone, Henrietta-street, Covent Garden, W.C.—H.S. £75.

Salford Union Infirmary, Hope, Pendleton, near Manchester.—Third Asst. Res. M.O. £275.

Scarborough Hospital and Dispensary.—H.S. £150.

Sheffield Royal Hospital.—Res. Surg. O. £200.

Sheffield Royal Infirmary.—Res. Surg. O. £200.

Sunderland Royal Infirmary.—Two H.S.'s. Each £140.

West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each £100.

Worksop Union Workhouse, &c.—M.O. £230.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at Cwmbran, Monmouth, and Eyam, Derby.

The Secretary of State for the Home Department gives notice that, in consequence of the resignation of Dr. Clement Dukes, one of the Medical Referees under the Workmen's Compensation Act, 1906, a fresh appointment has to be made for the Districts of the Rugby and Daventry County Courts (Circuit No. 23). Applications should be addressed to the Private Secretary, Home Office, and should reach him not later than Sept. 20th, 1924.

Births, Marriages, and Deaths.

BIRTHS.

ALLEN.—On August 27th, at a nursing home, Highgate, the wife of Francis Allen, M.B., of a son.

HITCHINGS.—On August 26th, at Westfield, Hawkhurst, Kent, the wife of Dr. D. B. Hitchings, of a son.

MURPHY.—On August 26th, at "Stonefield," Kidbrook-grove, Blackheath, the wife of Denis V. Murphy, M.B., of a daughter.

ROPE.—On August 20th, the wife of Dr. A. D. Rope, of Quarry-place, Shrewsbury, of a son.

THOMAS.—On August 28th, at Clapham, London, to Dorothy (Dorothy S. Chamberlain, M.B., B.S. Lond.), wife of Cyril J. Thomas, M.R.C.S., L.R.C.P., of the County Mental Hospital, Lancaster—a son.

MARRIAGES.

BURTON—FREIR.—On August 28th, at Pinchbeck Parish Church, by special licence, Wilfred Robert Burton, L.R.C.P.I. and L.M., L.R.C.S.I., to Ethel, daughter of Mr. and Mrs. S. Freir, of Yew Tree House, Sharpe's Bridge, Spalding.

CAMPBELL—CHRIMES.—On August 28th, at Nevin, Carnarvonshire, John Maurice Hardman Campbell, O.B.E., M.D., of Oxford, to Ethel Mary, second daughter of Captain Chrimes, C.B.E., and Mrs. Chrimes, of Gresford.

DEATHS.

BAYLISS.—On August 27th, at St. Cuthberts, Hampstead Heath, Sir William Maddock Bayliss, M.A., D.Sc., F.R.S., Professor of General Physiology at University College, London, aged 64.

DEMPSTER.—On August 28th, William Thomas Dempster, M.B.E., M.R.C.S. Eng., L.R.C.P. Lond., of Brighton-road, Croydon.

GAMBLE.—On August 23rd, at Glen Maize, Donnybrook, Natal, Leonard Dobbin Gamble, M.B., C.M. Edin., late of Abergavenny, Mon.

LIPSCOMB.—On August 25th, at Trégastel, Brittany, the result of a boating accident, Eustace Henry Lipscomb, M.B., B.C. Cantab., J.P., of Holywell Hill, St. Albans, Herts, aged 64.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

THE LANCET: SUBSCRIPTION RATES.

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Notes, Comments, and Abstracts.

RED CROSS WORK.

IN the able hands of its late Chief Executive Officer the Red Cross was becoming more and more associated with the reorganisation of hospitals throughout the country. On the death of Sir Napier Burnet, the Joint Council appointed Dr. F. N. K. Menzies as Director of the Department of Hospital Medical Services, and a report from him, including special articles of general interest to hospital workers, will be issued in the autumn. The present report[1] deals with the other work of the Joint Council. Although we are now six years from the armistice the Joint Council is still assisting many officers and ex-officers suffering from pulmonary and other forms of tuberculosis. These cases unfortunately show no signs of decreasing, and relapse is all too frequent. The Auxiliary Hospitals for Officers Department refunds hospital stoppages to necessitous pensioned and half-pay officers in sanatoriums, hospitals, and nursing homes, and so relieves them of anxiety for the welfare of their dependents. Since comparatively few patients are fit to start work immediately on discharge, it is customary to make a small weekly grant for extra diet and an additional grant for maintenance. The Department also helps ex-officers with the expenses of sanatorium treatment while their cases are under consideration by the Ministry of Pensions or the Officers' Appeal Tribunal, and, in cases pronounced ineligible but deserving and necessitous, the patient is given the chance of a reasonable period of sanatorium treatment. During the winter 1923–24 the Department made travelling arrangements for and gave financial assistance to a number of lung cases sent out to Switzerland and the Riviera by the Ministry of Pensions, the destination being Sunny Bank, San Remo (19 cases), Sanatorium Davos-Dorf (14), Palace Hotel, Montana (12), Sanatorium Altein, Arosa (10), Clinique Quisisana, Leysin (1), Chateau Mer et Mont, Mentone (4), and other places in smaller number. Emergency help was given on a large scale in the form of maintenance grants to the families of tuberculous ex-Service men while awaiting admission to the sanatorium, during their stay, and for a reasonable time after. Borough Emergency Help Committees are now represented on local tuberculosis care committees and overlapping is thus avoided.

The Home Service Ambulance Committee aims at bringing suitable means of transport within reasonable reach of the sick and injured in all parts of the country, and there are now 333 home service ambulance cars working in England, Wales, and Ireland. Without such cars, as the report pointedly states, much of the benefit of recent scientific discovery would be inapplicable to patients who are at any distance from a hospital. The Committee aims not merely at distributing ambulances but establishing an ambulance service attended by men and women with proper qualifications, and it is becoming the normal practice for members of the Order of St. John or British Red Cross Society to accompany the ambulance at every call. Home service ambulances are also available for various public duties; for the use of factories as required by the Home Office, to provide means for removal of serious cases of sickness and injury; and for the coal-mines, where men working in the pits drive and attend the ambulances during their rest periods. Home service ambulances are attending more and more at football matches, race meetings, and other crowded gatherings where casualties may occur amongst spectators. During a recent omnibus and tram strike they undertook the conveyance of out-patients to various hospitals in London. The recent conference on ambulances recommended local authorities to pay a mileage fee for ambulances sent for by the metropolitan police, and the War Office has recently recommended the various commands to use the service for the transport of military cases to hospital when other vehicles are not available. One ambulance has been fitted up as an X ray car, after being used as such on the Italian front and since maintained by the College of Ambulance. With the coöperation of the Institute of Radiology, radiographic diagnosis has thus been rendered available at the patient's home, the apparatus being erected in the bedroom and connected by means of cable to the dynamo attached to the car. Since the ambulance service has been instituted something like a quarter of a million cases have been carried in these ambulances, nearly 50,000 by 11 ambulances in West Lancashire alone, and in other counties the numbers run into thousands. This kind of Red Cross work deserves fuller recognition from the public than it now receives.

[1] Fourth Report of the Joint Council of the Order of St. John of Jerusalem in England and the British Red Cross Society, covering the period from April 1st, 1923, to March 31st, 1924.

A NEW VACCINATION ORDER.

THE Minister of Health has issued a new Vaccination Order for England and Wales, which will come into force on Oct. 1st. Hitherto under the Vaccination Order of 1923 the parent or person registering the birth of a child has been given "Form A," which requires that the child shall be vaccinated, and if the parent has any conscientious objection to the operation, he must apply for an additional form on which to make the statutory declaration. From Oct. 1st, under the new Order (Vaccination Order, 1924), Form A includes a form of declaration of conscientious objection. The effect of the new Order will be to facilitate procedure for the objector.

THE COLLEGE OF AMBULANCE, LTD.: THE CASE OF COLONEL PARKINSON.

THE recent case in connexion with the sale of honours appears to have reflected unfairly upon the College of Ambulance, Ltd., so that our readers ought to be reminded of the facts. Lieut.-Colonel G. W. Parkinson claimed from the College of Ambulance, Ltd., and their secretary, Mr. E. E. Harrison, £3000 on the ground that the money had been paid as a contribution to the funds of the College on the faith of representations by Harrison that in return he could, and would, procure for the plaintiff the honour of knighthood. Under the judge's direction the jury answered questions left to them by the judge as follows:—

1. (*a*) Did Harrison represent that he was in a position to undertake that the plaintiff would receive a knighthood?—Yes. (*b*) Or did he only promise to use his influence for that purpose?—No.

2. (*a*) Was that statement false?—Yes. (*b*) Fraudulent?—Yes.

3. Was the plaintiff induced thereby to part with his £3000?—Yes.

4. Did the plaintiff contract with Harrison personally, looking only to him for securing the knighthood?—No.

5. Did he contract with him in the belief that he was acting for and had the authority of the College in giving the undertaking?—Yes.

6. Was Harrison in fact so authorised, or was he held out by the College as so authorised?—Certainly he was held out as so authorised, and we consider he was so authorised.

7. Did the plaintiff knowingly mislead the council into thinking that he was making a voluntary donation?—No.

8. Damages?—£3000.

A verdict of the jury on the facts having thus been taken, argument took place as to whether any action could be maintained or money recovered upon such a contract as had been revealed. Mr. Justice Lush held that the action must be dismissed, but deprived Harrison of his costs, saying that he had increased the costs of the litigation by denying fraud, and causing the plaintiff to be cross-examined at length, and yet had not gone into the witness-box or called witnesses to meet the charge of fraud. A contract, his Lordship held, to guarantee or undertake that an honour would be conferred by the Sovereign if a contribution were made to a public charity, or some other service rendered, was against public policy, and therefore an unlawful contract to make, and one that could not be sanctioned or recognised by a court of justice. On the question whether the plaintiff could recover the money paid either from Harrison or from the College of Ambulance, he did not lay down that in every case of a contract against public policy, where one of the parties had defrauded the other, the plaintiff would be unable to recover; but that where there was an element of turpitude and the parties were *in pari delictu*, neither could recover against the other. The plaintiff knew that he was entering into an improper contract and he ought not to have made it. The plaintiff was not entitled to recover from the College on the ground that it had benefited through its agent, the illegality of the contract precluding him.

Mr. Justice Lush said that the questions as to whether the College had authorised or held out Harrison as authorised to promise a knighthood in return for £10,000 to the College, had been put by him, subject to doubt in his own mind as to whether there was evidence on which the jury could find that there was such authority. He now held that there was no evidence to justify the findings arrived at, but went on to say that if there had been, it would have made no difference to the result of the action, the contract being in itself illegal. Mr. Justice Lush's pronouncement with regard to the connexion of the College of Ambulance with the undesirable acts of its secretary, must have been eminently satisfactory to those responsible for its management, upon whom the jury's verdict cast what, in the judge's opinion, was an unmerited slur. Any charitable institution may rightly feel satisfaction at seeing rewards in the form of titles bestowed upon its supporters in recognition of their munificence. Those responsible for the finances

of hospitals and similar institutions should, however, be agreed that charity must be its own reward in the great majority of cases, and they must be of one mind with the judge in holding that any bargain to secure a recompense such as knighthood for a prospective donor is contrary to public policy. A bare offer to endeavour to procure such recognition is equally undesirable. Any power to procure honours and rewards supposed to be possessed by members of a particular board of management would at once confer upon it an unfair and undeserved advantage over other like bodies, and no doubt some, besides those persons directly interested in the recent litigation, will have noted the unenviable publicity which litigation has involved.

CONCERNING LEFT-HANDEDNESS AND STAMMERING.

To the Editor of THE LANCET.

SIR,—The sinister associations of left-handedness[1] were recognised by the Early Church. The Nestorian Christians of India attribute to the ministrations of St. Thomas, the apostle, their conversion to the faith, and there can be no doubt that Christianity was established on the coastal regions of India at a very early period. The traditions of the Early Church give very curious information as to the strange manner in which the Saint travelled to these parts of the world, and of his work and sufferings in the East, where (as the "Golden Legend" has it) he preached the Gospel to the miscreants. In the apocryphal "Acta Sancti Thomæ," which record his evangelisation among the peoples of India, there is an incident recorded where the Saint persuaded a newly-wedded pair to a life of Christian asceticism: with an account of the arguments he made use of, some of which are distinctly "modern" (shall we say?) in their tone. He told them that if they adopted this course of life they would avoid much trouble both for themselves and for any potential offspring, drawing for their benefit a brief but sufficiently vivid account of the possible undesirable eventualities attendant upon multiplication of what perhaps he secretly considered to be an undesirable stock.

The descriptions as given in the various languages in which this story has come down to us are in substantial agreement,[2] but the Amharic version introduces an interesting variant in giving left-handedness as one of the stigmata held out to the young couple as a possible result of their perpetuation of their race. It has been translated by Sir E. A. W. Budge from the collation of two MSS. in the British Museum,[3] and the argument made use of by St. Thomas runs as follows. If his auditors follow his advice, "then will ye escape labour and sufferings, both the seen and the unseen; and ye shall be free from worldly cares, and the children who would form your posterity will not come into being. If ye beget many children ye will, for their sakes, become avaricious oppressors, and ye will afflict the orphan and the widow, and ye will become unjust persecutors. And if ye do all these things, ye will suffer sore chastisement. And the greater number of children become wicked and fall into error, for devils attack them either secretly or openly, or they become mad, or foolish, or deaf, or left-handed, or lame, or paralysed. If they escape these things they become unprofitable evildoers, or workers of abominations, or they become the companions of avaricious men and thieves, and in any case ye suffer labour and sorrow."

This catalogue of *vitia* allied in their incidence to left-handedness is significant: insanity, deafness, paralysis, deformity, criminality, and other forms of anti-social defect. The Greek text[2] gives in addition blindness, dumbness, "half withered"-ness, adultery, murder, and theft. A personal experience of my own may be of interest in this connexion of left-handedness. Twenty years ago or more, during my student days, I was taken with the idea that it would be very excellent if, in surgery, I could use either hand indifferently. With this end in view I practised using the left hand and, amongst other things, taught it to write. It was not long before I could write (as I still can) legibly, though not very quickly, with the left hand; but an immediate effect was that my normal (right-handed) writing suffered marked alteration for the worse, and this deterioration has been permanent.

In the Manchester *Evening Chronicle* for August 20th there is an account of how on that date at the Royton Police Court a domestic servant was bound over after pleading guilty to theft, having broken into her employer's house while he was away on holiday, stolen some money, and gone away leaving the house open. Her employer, who put in a plea of leniency on her behalf, is reported as saying, "Her history was a very sad one. She stammered badly as the result of shock through finding her father hanging when she was a little girl." There is no mention of her being left-handed or anything of that sort, but this correlation of stammering and conveying (as wise men call it) has a certain significance at the present moment.

For those who are interested in the subject of left-handedness there is quaint reading to be found in the fifth chapter (Of the Right and Left Hand) of the fourth book of Sir Thomas Browne's "Pseudodoxia epidemica" (1646).

I am, Sir, yours faithfully,

August 27th, 1924. SINISTRÉ.

[1] W. S. Inman: Squint, Left-handedness, and Stammer, THE LANCET, August 2nd, p. 211.

[2] See James, Apocryphal New Testament, 1924, p. 369.

[3] Addendum to Baralam and Yewasef, 1923, vol. ii., pp. 304–5.

UNSIGHTLY WARTS.

To the Editor of THE LANCET.

SIR,—In reply to Dr. G. S. Sander (THE LANCET, August 2nd, p. 256), a young woman had a wart so large it resembled a black teat under her chin. By my suggestion she washed it with carbolic soap, also damped it slightly and rubbed the soap against it so as to leave a little about it. It soon disappeared, leaving no trace. I have never seen warts which carbolic soap used in that way would not quickly cure.

I am, Sir, yours faithfully,

August 26th, 1924. M. L. J.

To the Editor of THE LANCET.

SIR,—May I suggest to your correspondent that he try the effect of surgical diathermy on the multiple soft warts which are annoying his patient. One method of application is described by Saberton on p. 105 of his small text-book ("Diathermy in Medical-Surgical Practice." Cassell and Co. 1920). I have modified this method in my own practice, connecting the patient directly to the Tesla pole and earthing, as does Saberton, through a pointed probe which I hold in my own hand. This makes the condenser couch superfluous. The spark gaps on the diathermy machine are at first closed down as far as possible until the wart is partially anæsthetised and a thin layer of desiccated tissue covers the surface. It is then necessary to open the spark gaps and increase the current somewhat in order to desiccate the growth completely. The method is practically painless, usually efficacious in a single sitting, and so far I have not seen any scars.—I am, Sir, yours faithfully,

ROSSLYN EARP.

Antioch College, Ohio, U.S.A., August 20th, 1924.

GRATUITOUS MEDICAL ATTENDANCE.

To the Editor of THE LANCET.

SIR,—Your issue of August 16th contains a letter signed "Inquirer" and a commentary by yourself which embrace what I have always believed to be the sentiments of the entire profession; at any rate, my own experience has been that no doctor or dentist has ever accepted a fee from me, though I have never failed to press an offer of pecuniary reward for services rendered. That I have been fortunate is evident from the fact that many of my colleagues in the Services, particularly the Navy, have been charged, in some cases quite large sums, for professional services rendered to themselves or their wives, the larger sums being frequently marked "half fees."

Are we to understand that there are amongst our professional brethren those who repudiate that relationship because our practice is confined to our own Services?

I enclose my card, and am, Sir, yours faithfully,

August 27th, 1924. MARS.

THE HAZEL LUXURY SHOE.

A SHOE with a wool-felt lining has the advantage of being comfortable and of keeping the foot dry and warm, but the general use of such shoes has been impeded by the cost of production involved in sewing a felt sole to the boot by hand. Messrs. Crick and Co., boot manufacturers of Northampton, with branches in London and the suburbs, have overcome the difficulty by a patent process of manufacture. In these shoes, which we have tested, the insole of wool-felt is a quarter of an inch thick, and although compressed in walking retains its resiliency. No doubt so absorbent a material is more likely to retain perspiration, an objection which can be met by more frequent change of socks. To those who suffer from cold feet or who need to be careful to keep their feet warm, a shoe of this kind should prove of value.

FOOD VALUE ON LIFEBOATS.

THOUGH the Board of Trade appears to have on its staff no official medical adviser, it has yet made a definite advance in ordering that, to the biscuits and water carried in the boats of merchant ships for use in emergency, there shall be added from July, 1925, one pound of condensed milk for each person the boat is certified to carry. This will raise the proportion of fats and the total caloric value of the food available. The difficulty of distribution may be serious,

and that inclines us to regret that a solid ration of chocolate had not been ordered instead. Water is in boats carried in small flat casks, breakers, and is distributed with a tiny enamelled-metal bucket, the diameter of a man's thumb and the length of two. The little bucket is dropped into the breaker through the bung-hole and so filled that none of the precious fluid may be lost in the pouring of it out. Chocolate in bars would keep very well in the biscuit tank, and, marked in ounce or half-ounce lengths, could be easily served out. We hope the officers of the Board of Trade will give further thought to food values when providing for the needs of the shipwrecked.

PUBLIC HEALTH IN PALESTINE.

A REPORT on the administration of Palestine just presented to Parliament by the Colonial Office contains the following statements with regard to health in the mandated territory. The organisation in the last three years, and the higher standard of professional knowledge inculcated in all sections of its staff by means of regular courses of training, have enabled the Health Department to hold in check the diseases —malaria, enteric fevers, typhus, and small-pox—which in the past ravaged the country. Measles broke out more than once in epidemic form with pneumonic complications, causing heavy mortality among children. Small epidemic units with nurses served some affected areas with good results; about 5000 cases, with a death-rate of 18 per cent., were reported. Measles is, therefore, chiefly responsible for a large increase in the death-rate, which for the first 11 months of 1923 was 25·03 per 1000, as compared with 18·75 per 1000 in 1922. There were restricted outbreaks of plague in the summer at Jaffa (11 cases, one death) and Haifa (four cases, one death). The efficiency of the antimalarial campaign has been maintained; economies in its cost have followed the measures taken to protect cisterns and clear swamps under the Anti-Malarial Ordinance, and with the ready coöperation of the inhabitants, now appreciative of the benefits derived from antimalarial operations. The most notable results have been achieved in the once malaria-ridden Valley of Esdraelon. The menace of the anopheline mosquito has been banished from the large towns, and the established control of culex breeding renders almost unnecessary mosquito nets or the mosquito-proofing of houses. In the attainment of these results the two American units, the Malaria Research Unit and Malaria Survey Section, have given invaluable service. Palestine is also indebted to the workers in, and subscribers to, the voluntary and missionary hospitals, without whose unremitting care and constant help the progress made during the past two years would have been impossible. Improved water supplies in towns and villages, where springs have been guarded from pollution and piped, and stricter supervision of public establishments helped to lessen the incidence of enteric fevers. The occurrence of typhoid and typhus was almost altogether confined to immigrants from Central Europe.

On the closure of the travelling ophthalmic hospital and ancillary clinics special ophthalmic clinics at Government hospitals and dispensaries were formed, and are conducted by medical officers who have taken a course of instruction at an ophthalmic "training centre" in Jerusalem, under the chief surgeon of the British Order of St. John of Jerusalem Ophthalmic Hospital, Jerusalem. The travelling hospital had since August, 1919, treated 14,148 patients; the total attendances were 81,848 and 5378 operations were performed. 18·3 per cent. of its patients were blind in one or both eyes. The medical inspection and treatment of children in Government schools, particularly for eye disease and parasitic and verminous condition of hair and skin, have been attended with success.

At Kantara quarantine control was abolished, and will be exercised in future during the pilgrimage season only, or if extensive epidemics develop in Egypt. As from September, travellers arriving at Samakh and Ras el Nakura by motor-car route from Baghdad were placed under medical surveillance against cholera and small-pox. Ship and passenger inspection at the ports was conducted without interruption. At the end of 1923 there were seven Government general hospitals dieting for 168 patients, and a mental hospital at Bethlehem dieting for 40 patients. The sanitation of villages progressed only where local councils exist. Notification of births and deaths is more regular, and infectious disease, except of the minor type such as measles, is reported more readily under the stimulus of periodical visits by medical officers. Laudable efforts have been made in some towns to improve the primitive drainage systems.

A serious increase of rabies in dogs and jackals, reflected in a greater number of human victims, has demanded an organised campaign. Antirabic vaccine is now prepared and distributed directly by the Health Department. There were 11 cases of hydrophobia, all fatal. Circulars to enlighten the public were published. The number of lepers in Palestine does not now exceed 80; of these 30 are in the Moravian Society's Leper Home, Jerusalem.

The central laboratories of the Health Department, with bacteriological, chemical, and antirabic divisions, are in Jerusalem, and there are clinical laboratories at Jaffa and Nablus; these, with the laboratory of the Malaria Research Unit at Haifa, and the laboratories of the Hadassah Medical Organisation at Jerusalem, Jaffa, Haifa, Tiberias, and Safad, ensure, by close coöperation, rapidity of diagnosis and analysis of specimens throughout the country.

The voluntary hospitals and dispensaries, despite diminished funds, treated 20,000 in-patients in 1923. In regard to the training of nurses, a higher and more uniform standard was reached in examinations than in previous years, in both Government and voluntary hospitals. In the Rothschild Hospital, Jerusalem, more than 40 nurses are undergoing instruction. In the Midwives' Training School of the Government Hospital, Jerusalem, 11 women (as against three in 1922) passed the qualifying examination. Licences to practise were granted to 80 doctors, 39 dentists, 22 pharmacists, and 28 midwives. The medical and dental professions are becoming seriously overcrowded. The wholesale trade in drugs and poisons is more strictly controlled. Special certificates are issued for the import of the dangerous narcotic drugs controlled by the Imperial Opium Convention; the amounts imported in 1923 were: cocaine, 9965; morphine, 710; codeine, 2384; and heroin, 1398 grammes.

A HOME BUBBLY-BATH.

EFFERVESCING baths have been employed for their sedative and tonic action in neurasthenia and certain conditions of cardiac disturbances; at Nauheim they have long been the recognised treatment for cardiac dilatation, and the whirlpool bath introduced at many Red Cross institutions during the war was found of value not only in cases of muscular and articular trouble, but also in systemic affections. The Aerophor Pearl Bath Apparatus (J. Wenger, 65, Hayter-road, London, S.W. 2) is designed to provide at home an effervescing bath so as to avoid the trouble and expense of visiting a spa. Effervescence is produced in one type by an electro-motor to be connected with the electric-light supply, and in other types by a small turbine, compressed air being liberated through minute holes in a grid at the bottom of the bath over which is placed a wooden rack. The aeration is claimed to allow a higher temperature of water to be used, and to result in a tonic quality which the ordinary bath does not possess. The bath is, we understand, in extensive use at hydropathic establishments and holiday resorts in Switzerland, as well as at a number of Swiss hospitals, and medical testimonials from America show its appreciation there in cardiovascular and certain types of neurotic disorder.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Sept. 8th, to SATURDAY, Sept. 13th.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars. Clinical Instruction in the Out-patient Department every afternoon from 2.30 P.M. Venereal Clinic Tuesday and Friday from 5.30 to 7 P.M.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross. Clinical instruction every afternoon from 2 P.M. Wed., 5 P.M., Mr. Giblett: Clinical Demonstration on Common Affection of the Eye. Thurs., 5 P.M., Mr. Morgan: Fundus Class. Fri., 10 A.M., Mr. Hine: Methods of Examination.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Mon., 5 P.M., Mr. Bathe Rawling: Cerebral Surgery.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Sept. 8th.—11 A.M., Surgical Registrar: Surgical Wards. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair Surgical Out-patients.

WEDNESDAY.—11 A.M., Medical Registrar: Medical Wards. 2 P.M., Dr. Pernet: Skin Dept. 2 P.M., Dr. Gibb: Eye Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—11 A.M., Mr. Dudley Buxton: Dental Dept. 12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M. In-patients, Out-patients, Operations, Special Departments.